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CONTENTS

Frontispiece: Craftsmanship in Its Chrysalis

Murals by Photography — 127
By Eugene Clute

Hayden Planetarium, New York City — 133
TROWBRIDGE & LIVINGSTON, ARCHITECTS

House of Alexander H. Girard, New York City — 139
ALEXANDER H. GIRARD, ARCHITECT

Bryant Park, New York City — 145
DEPARTMENT OF PARKS, NEW YORK CITY

Travel Notes of an Amateur Houser — 149
By B. Charney Vladeck

House of Mr. and Mrs. Melbert B. Cary, Jr., Dutchess County, N. Y. — 151
ROSWELL F. BARRATT, ARCHITECT

House of D. Allen Wright, Detroit, Mich. — 155
D. ALLEN WRIGHT, ARCHITECT

Better Practice: Store Fronts — 159
By W. F. Bartels

New Housebuilding Techniques: Metaform System — 163
By Gerald F. Dingman

The Editor's Diary — 165

Architectural News in Photographs — 166

Portfolio: Balcony Railings (Interior) — 169

Design in Materials

The Sample—Does Yours Work, or Is It a Dud? — 185

Air Conditioning in the Hayden Planetarium — 188

Aluminum Gates by Coletti — 188

Quicker, Stronger Concrete — 189

You Know These Men by Reputation — 190

Co-operation I Want — 191

The Producers' Council — 191

Wall Street Studies the Building Boom

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THE BUILDING TREND

By E. L. Gilbert

THE STEADY TONE of the construction market seems to reveal a backlog of work undone which may make the coming spring months surprisingly strong in the point of volume of new work in all three main classifications. Field reports from all parts of the country endorse this thought, their consensus being that a steady, continuous improvement has manifested itself during the last ninety days, contrary to the usual seasonal declines to be expected at this period of the year. The figures presented below represent the per capita rate for entire United States, in each case covering the month of January, 1936, the comparable statistic for January of last year, and for January, 1934. The charts, which present a picture of the current month activities compared with an average computed from the records of the years 1933–1935 inclusive, also represent figures for the entire United States.

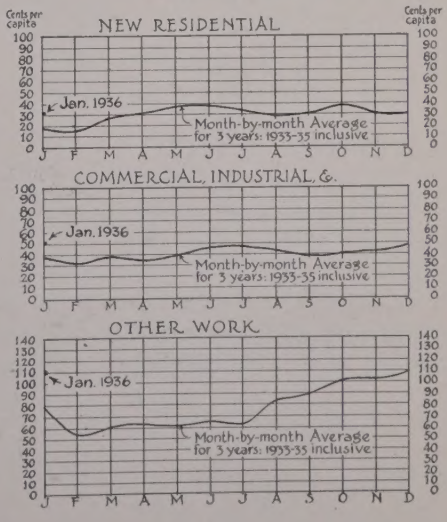
MONTH OF JANUARY

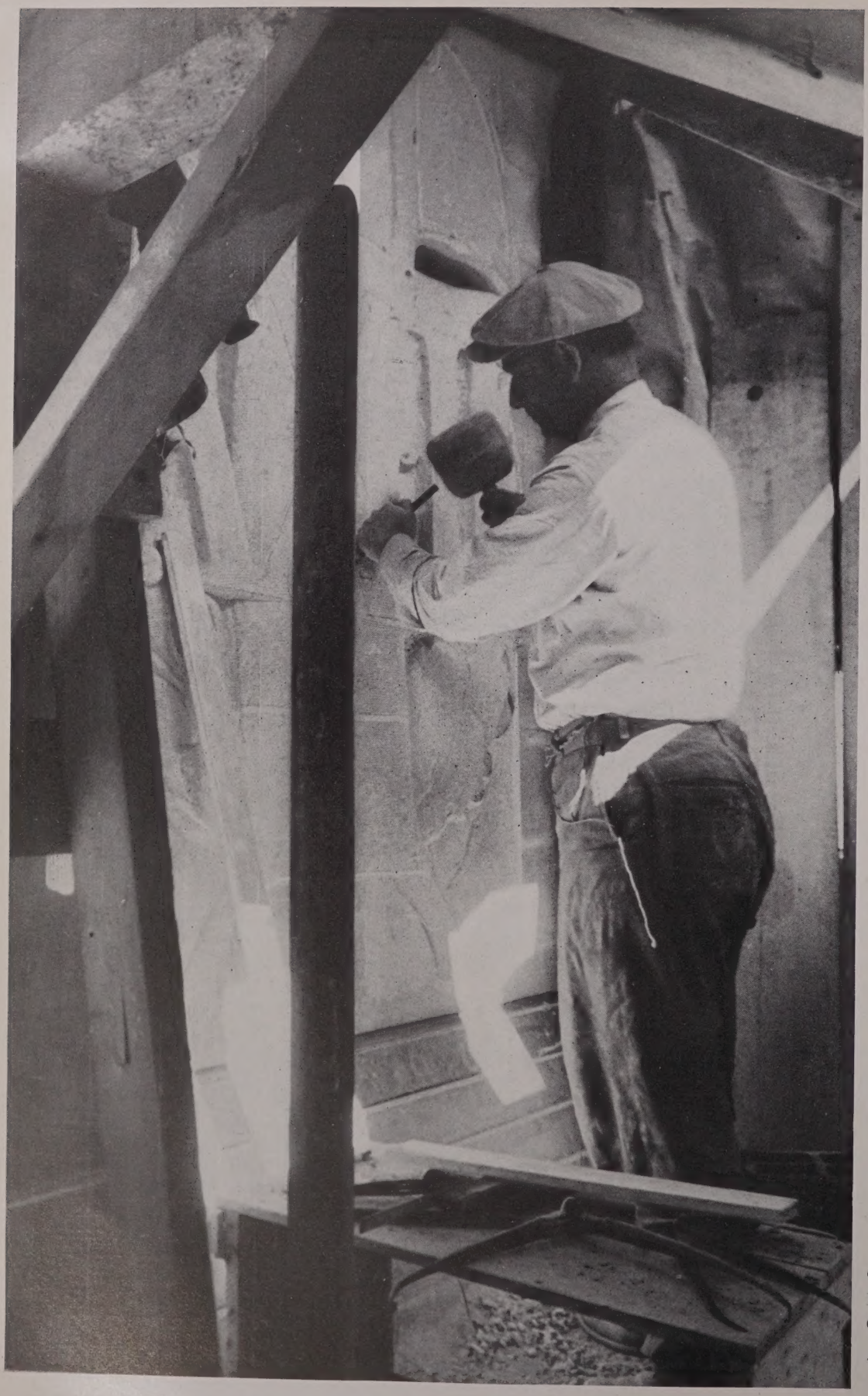
(DOLLARS PER CAPITA, ENTIRE U. S.)

CLASSIFICATION	1934	1935	1936
New Residential	$.16	$.24	$.31
Commercial, Industrial, etc.	.53	.40	.51
Other Work	.99	.57	1.10
Totals	$1.68	$1.21	1.92
Building Material Prices, U. S. Dept. of Labor, end of January, 1936*	86.5	84.8	85.2

*Index numbers based on 1926 = 100.

YEAR TO DATE





Photograph by
Jeannette Griffith

CRAFTSMANSHIP
IN ITS
CHRYSALIS

ARCHITECTURE
VOLUME LXXIII NUMBER 3
MARCH, 1936

MURALS BY PHOTOGRAPHY

By Eugene Clute

ILLUSTRATIONS FROM THE WORK OF DRIX DURYEA

IT is a far cry from the first crude applications of photographic enlargements as wall decorations to the murals produced by photography which have lately made a place for themselves in the treatment of fine interiors. These decorations are now being incorporated in homes as well as in other buildings by discriminating architects and decorators. The really excellent works in this medium are, however, something very different from the general run of decorations produced by the same means. The factors that make them better are the same that distinguish the good murals from those that are not good in such old techniques as tempera, fresco and oils, namely: good subject matter, good pictorial and decorative composition, suitability to the place, and good craftsmanship or artistry.

This technique lends itself sympathetically to the treatment of historic subjects and to antique effects as well as to the presentation of simplifications, abstractions, and stylistic creations in the modern manner. It can be employed, therefore, equally well in interiors of traditional period character and in purely modern interiors.

Among the best sources of subject matter for such decorations are old prints and maps, which are especially well adapted to this treatment. Frequently prints depicting the early history of the locality in which the building is situated can be used with special appropriateness and made to contribute greatly to the interest of the interior.

There is a wealth of suitable material of this kind in the museums and public libraries, where it can be photographed usually after securing permission.

At the Metropolitan



Sculpture as a basis for a mural, a portion of the Javanese "Queen's Temptress," by Allan Clark



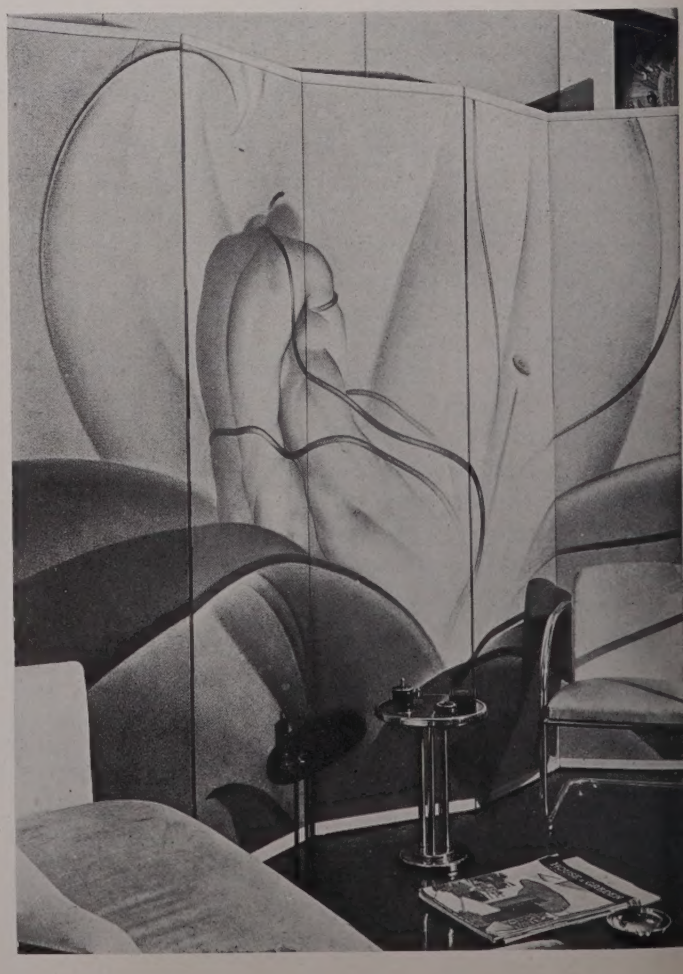
Murals in a house at Darien, Conn., Evans, Moore & Woodbridge, architects, made from snapshots taken by the owner in Bermuda

Museum of Art and the New York Public Library old prints, maps, and the like can be photographed by making arrangements in advance. They are brought to a special room at the appointed time and handled by members of the staff. The photographer brings his camera and makes the pictures. A small fee is charged to cover the expense of making the subjects accessible. Almost any print or map that the museum or library has can be photographed, excepting those that belong to loan collections and are not the property of the institution. In the case of such a subject, permission can usually be secured from the owner of the collection.

Not infrequently, the client for whom the mural is intended owns suitable prints or old maps, and sometimes they are to be found in the collections of his friends or at a club of which he is a member. Then, there are the galleries of dealers, where such subjects can be photographed possibly by special arrangement.

Maps are sometimes drawn in the old manner to represent the county, state, or countryside in which the building is situated, and may be embellished with clever drawings of local buildings or typical figure subjects rendered in a quaint style, often with a touch of humor. Such maps can be drawn at conveniently small scale, enlarged photographically, rendered in color in the medium of transparent oils, and antiqued.

Photographs of landscapes, of course, make good subjects, and amateur snapshots can be used successfully, so the owner can have his murals made from pictures he has taken him-



A modern design on a large folding screen made from a charcoal drawing by Major Felten



Murals from old prints in the dining-room of a New York apartment decorated by Edith Parker Bryce and others

self. Then there are details from nature, piled-up clouds, seascapes, blossom-laden tree boughs, and countless other such effective subjects.

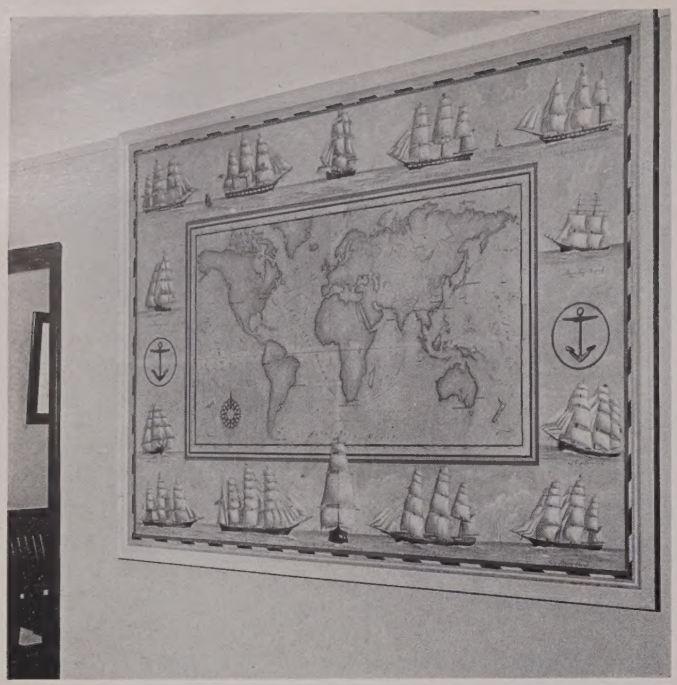
Our highly mechanized civilization affords no end of themes to be worked out with photographs of airplanes, the parts of radio apparatus, and of dynamos and other machinery, the slender steel lattice towers that carry high-tension electric power cables, and things of that sort.

Dramatizing an industry on the walls of an executive office is a practicable idea—blast furnaces and rolling mills silhouetted against the sky in a steel company's headquarters, for instance. It represents the thing with which the life of the executive is bound up and it tells the story to visitors. Not least of all, it should have a good effect upon the morale of the members of the organization, for it puts before them impressively the romance and magnitude of the enterprise with which they are identified.

A *montage*, composed of countless photographs mounted this way and that, to produce a decorative pattern of light and dark, of line and form, is best, usually, in epitomizing an industry with representations of mechanical parts. The mechanistic type of design in which parts are dissociated from the complete apparatus or machine and only partially shown has proved successful. It approaches abstraction and is more a composition in pure form than anything else, with the forms coming from a particular industry and characteristic of it. It has been found effective to repeat a form in an overlapping arrangement. This produces



Mural on the main staircase at the Uptown Club, New York City, made from an airplane view of lower Manhattan



Map in the offices of the Standard Shipping Company, Rockefeller Center, New York City, from an original drawing by Drix Duryea

rhythm and gives emphasis to the form. There should be more complete representations at focal points, however, to give definiteness and accent. The pattern of light-and-dark, called by the Japanese the *notan* of the design, should be studied with care.

The *montage* can be made from photographs of conveniently small size, combined to form a panel, re-photographed and enlarged.

In a New York advertising office, representing one of the world markets—Industry



Especially interesting possibilities lie in the use of sketches in charcoal, the roughness of the paper on which the drawing is made giving a very effective texture to the mural. Pencil sketches also serve well, cleverly drawn vignettes from a polo game, full of action, or sketches of picturesque roofs and towers recalling pleasant vacations days abroad—just bits here and there with plenty of plain ground showing between them. Some very effective murals have been made from small photographs of modern sculpture, strongly lighted against a black background or a ground divided into areas of tones in a way reminiscent of Cubist design, but simpler and bigger in scale.

So far as composition is concerned, the same need for the effective organization of masses and lines exists here as in any other decorative design. As in other murals, the details should group themselves into larger simpler forms, constituting a pattern that will read well at some distance and resolve itself into details when one approaches it. The details or the nuances of tone or color are what give a mural its sustained interest. Good organization into a pattern of masses is what prevents it from creating an effect of confusion or lack of character.

The only really good photo-murals are those made by an artist of genuine ability. The lack of this quality, together with the choice of very poor subject matter, is responsible for the fact that most murals made by this method are of little or no artistic worth. But this is true as well of decorations produced by the older techniques. A good photo-mural is a work of art.

A technique has been developed that is based upon the use of photographic enlargements, produced with special apparatus designed for the elimination of grain and the control of tonal quality, but that includes hand coloring, dyeing, redevelopment, antiquing, and glazing. Good composition and good photography are essential, and no amount of subsequent treatment can disguise or make up for the lack of them. But these supplementary methods often give the requisite beauty, completeness of statement, and decorative suitability to the murals.

The photographic paper which is used is specially sensitized and coated and develops a picture in black and white, with intermediate tones of gray. By redevelopment in a chemical bath this color can be changed to brown and white. The brown can be almost any shade

from a cool sepia through warm sepia to terra-cotta. This process is called "toning," and by the use of different chemicals the print can be changed to certain other colors, which to some are not as pleasing, however, as the black and white and the brown and white. The coloring should be subdued and well harmonized, never heavy, or a garish effect would be produced and the photographic tones too greatly obscured. A little strong color may be used in touches for accent.

A pleasing tonal quality is given to murals that reproduce old prints by applying a wash of pale amber or brownish hue over the entire surface after the tinting of parts in various colors has been completed. This gives an appearance of age, softens the coloring, pulls the whole thing together, and makes it tone in better with the woodwork of an interior of historic period character.

A glaze, lacquer, or varnish is often applied finally. A dull gloss finish is best on murals made from old prints, while a moderately glossy coat of varnish seems to be most suitable on reproductions of old maps, though it is not liked by some. The high lights on the varnish surface break up any too definite lines of the map agreeably, but such high lights tend to prevent one from seeing the detail of a print well enough. Traditionally, maps should be glossy, for they were most often protected with varnish, while prints do not have this glazed surface.

The photographs show murals by Drix Duryea produced by one or another of the various developments of this technique and representing varied subject matter. They suggest the decorative possibilities of such murals.

One of the most effective is the one on the main staircase at the Uptown Club; James Gamble Rogers, architect; Electus D. Litchfield, associate architect; Emma B. Hopkins, decorator. It was made from an airplane view of lower Manhattan, and has a degree of atmospheric depth giving a sense of space and openness that is very pleasing.

The murals in India House, those in the dining-room of a New York apartment decorated by Edith Parker Bryce and others, show the possibilities that lie in old prints, while the view in the office of the Ætna Insurance Company at Hartford—James Gamble Rogers, architect—shows how an old map can be converted into a suitable mural by this means.

The map on a wall of the private office of Robert L. Hague in the offices of the Standard Shipping Company in the RCA Building,



Mural in India House, New York City, shows the possibilities that lie in old prints

Rockefeller Center, New York City, is from an original drawing made by Drix Duryea especially for this purpose. It represents the trade routes followed by the famed old American clipper ships, and is surrounded by a border of drawings of some of the more important of these ships, including Paul Jones's ship the *Ranger*, the ship *Great Republic*, and the packet ship *Isaac Webb*. This map with its border is the result of much careful research conducted with

Another old print reproduced on one of the walls of India House





A dramatization of radio broadcasting, utilizing technical details pictorially represented. This is in the entrance rotunda leading to the National Broadcasting Studios, Rockefeller Center, New York City. The murals were mounted on canton flannel and this in turn on a hard wall board, for acoustical purposes

the assistance of and under the supervision of Mr. Hague, who is keenly interested in the early ships and knows a great deal about them.

Especially charming is the treatment of the dining-room of a home at Darien, Conn., with murals made from snapshot photographs taken by the owner on a visit to Bermuda. The coloring is in delicate grays, blues, and coral tones, applied by hand. The decoration of the room has been designed around this coloring as a harmonious and not too assertive setting.

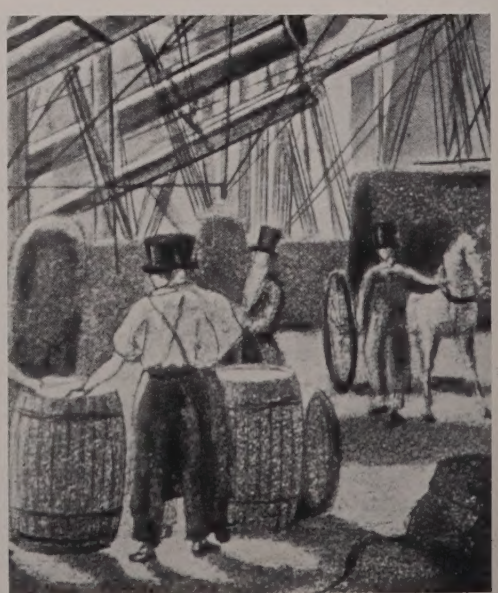
A striking example of the use of a photograph of a piece of statuary as the basis for a mural—in this case a portion of the Javanese "Queen's Temptress," by Allan Clark—is seen in the overmantel in a room decorated in the modern manner by Roy Belmont.

The technique of two murals of different types is shown clearly by the two close-up photographs. One is of the historic period type—a view of South Street, New York City, made from an old print. It is hand colored. The soft old reds on the brick house fronts run to golden amber in the distance, with steel grays in the sails and rigging of the ships for contrast. The other close-up is a detail of the screen made from Major Felten's drawing. It shows the admirable quality that is given by enlarging the texture of the charcoal drawing.

These murals are applied in strips varying from 40 inches to 50 inches wide, as the installation may require. They are applied in the same manner that is used in hanging fine wallpapers. They can be hung with either a butted joint or a sanded, overlapped seam, but the latter method is usually the more effective.



A close-up of a detail of the screen from Major Felten's drawing



Another detail of texture, from a mural showing South Street, New York City; made from an old print and hand colored

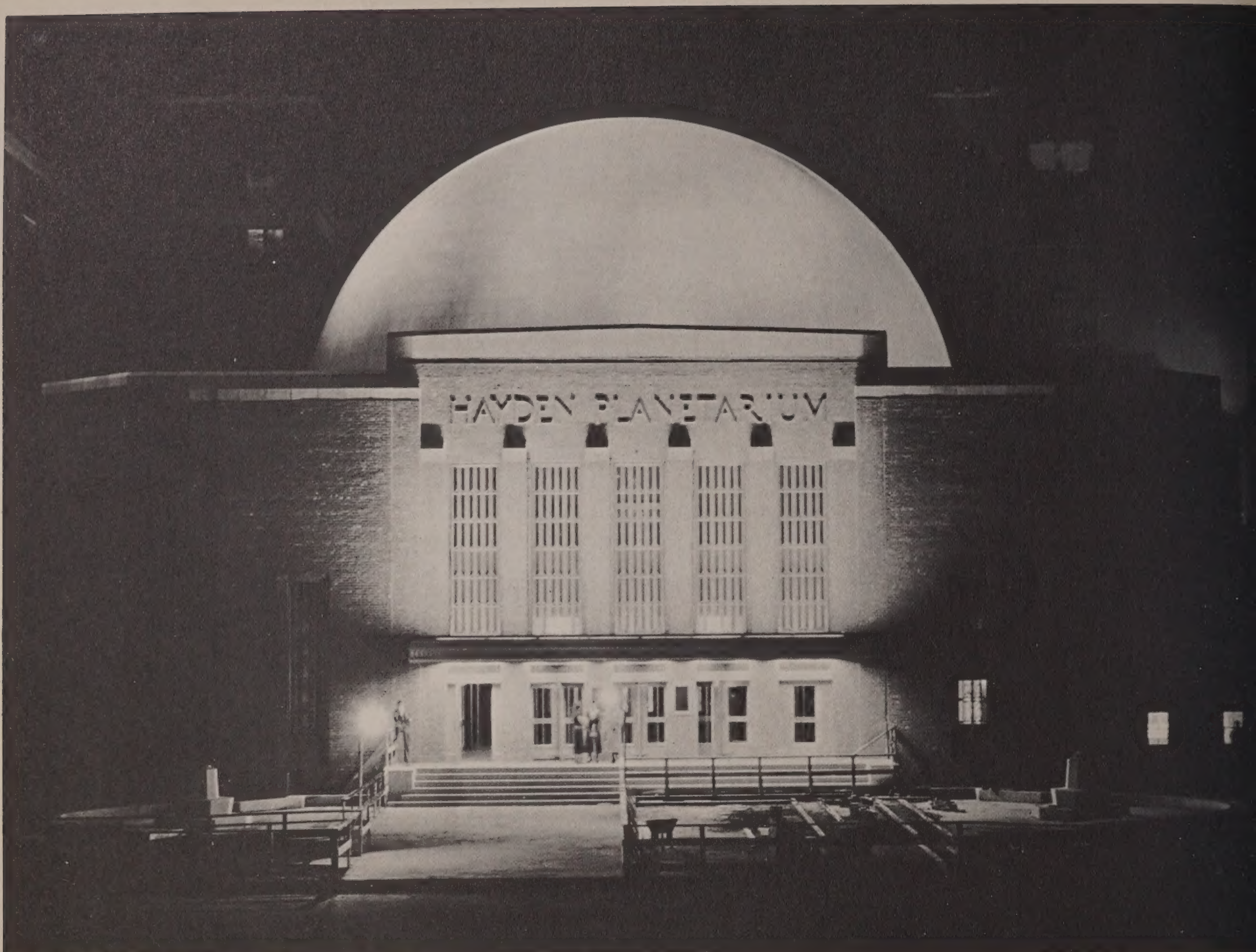


From the drawing by Hugh Ferriss

The Planetarium is a part of the American Museum of Natural History, financed as a self-liquidating project by the R. F. C. The elaborate projection equipment was acquired through a gift of $150,000 by Charles Hayden. In the drawing above there is shown the Planetarium Chamber which, as will be seen by the plans on the next page, is the upper part of the structure under a dome

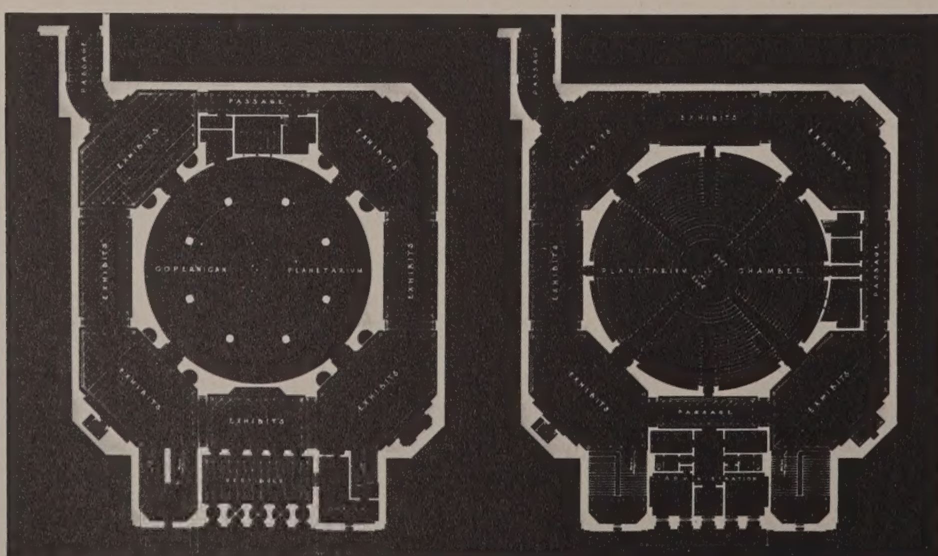
TROWBRIDGE & LIVINGSTON, ARCHITECTS

Hayden Planetarium, New York City



Photograph by Wurts Brothers

Exterior of the Planetarium at night, with its dome lighted from behind the parapet. Below, the plans of first floor (left) and second floor (right)



HAYDEN PLANETARIUM, NEW YORK CITY, TROWBRIDGE & LIVINGSTON, ARCHITECTS



tograph by Wurts Brothers

The walls of the Planetarium Chamber to the height of 5′ are covered with a perforated metal wainscoting with sound-absorbing material behind. Just above this are four metal louvers set at an angle of 45 degrees, and projecting 1′ 6″. These terminate at a height of 11′ above the floor. Wainscoting and louvers are painted a blue-black. The purpose of these louvers is to deflect downward any projected rays which would otherwise be reflected back into the eyes of the audience. The dome ceiling of the Chamber, with a diameter of 75′, is of perforated stainless steel painted white, forming the reflecting surface for the Zeiss projecting machine

HAYDEN PLANETARIUM, NEW YORK CITY, TROWBRIDGE & LIVINGSTON, ARCHITECTS



Photograph by Wurts Brothers

The entrance vestibule on the first floor. The walls are sheathed in marble; the ceiling simply decorated with plaster; the floor of terrazzo with aluminum alloy inserts

Photograph by Wurts Brothers



The dome over the Planetarium Chamber, with a diameter of 81′, is of reinforced concrete 3″ thick, increasing to 3½″ at base. From this dome, hangers drop to support furring angles; from these, hangers support the perforated steel projection dome, with turnbuckles permitting adjustment and proper distribution of the load

In the Copernican Planetarium, walls are of a midnight sky blue, with figures of the Zodiacal constellations taken from a work on astronomy published in 1603. The stars are of luminous silver paint

HAYDEN PLANETARIUM, NEW YORK CITY, TROWBRIDGE & LIVINGSTON, ARCHITECTS



Photograph by Wurts Brothers

Around the hexagonal center, housing the Copernican Planetarium below and the Planetarium Chamber above, is this wide corridor space for exhibition purposes.

The projection dome is made up of individual plates flanged ¾" on one side and one end; the plates lap ⅜" and are electrically welded together. To the flanges are attached the hangers. To prevent condensation forming on the underside of the dome, and as part of the acoustical treatment, the underside of the concrete dome is covered with 1½" of rock cork

Photograph by Wurts Brothers



A close-up detail of the skyline at the bottom of the Planetarium Chamber dome. The effect is secured by cutting the white painted steel. Particular pains were taken to secure a true representation of the skyline of New York from a central point near the Museum

HAYDEN PLANETARIUM, NEW YORK CITY, TROWBRIDGE & LIVINGSTON, ARCHITECTS



Photograph by Wurts Brothers

The Copernican Planetarium, on the lower level. In the center of the ceiling there is a light source representing the sun, while smaller groups representing the six planets nearest the sun, together with their satellites, revolve around the sun at their relative speeds



Photograph by Wurts Brothers

A close-up detail of Saturn hanging from its track in the ceiling. Within the steel box is a mechanism which provides the proper revolution speed and the motion of the satellites

HAYDEN PLANETARIUM, NEW YORK CITY, TROWBRIDGE & LIVINGSTON, ARCHITECTS



Photographs by Drix Duryea

The architect's apartment is in an old city house on East 70th Street of which little more than the original bearing walls were retained. All of the furnishings, accessories and lighting arrangements were designed for their present location and use, with equal consideration for the utilitarian and æsthetic requirements.

Above is a view in the south living-room. The mural, also executed by Mr. Girard, extends around the room with a principal color note of blue, varied in tone and key. All of the furniture and accessories were designed for the room, and although there is great richness and variety of color, the harmony between fabrics, wood, leather, and other materials is closely maintained

Apartment of Alexander H. Girard, Architect, New York City



Chimney breast in the south living-room. The frame and jambs enclosing the hearth opening are of a marble composition, somewhat resembling terrazzo, in two shades of cerulean blue. To the right and left of the jambs are panels of olive wood behind which firewood is stored. The clock is of macassar ebony and East India satinwood, the face and other small parts gilded. This elaborately delicate shape contrasts pleasantly with the large expanse of mirror. The lighting fixtures flanking the mirror are of glass and finely wrought gilded bronze

APARTMENT OF ALEXANDER H. GIRARD, ARCHITECT, NEW YORK CITY

Entrance hall of the main floor, with an inside stairway to the ground floor. Walls are chalk white, ceiling a very deep blue. The balusters, turned and carved, with the railing are lacquered white. Against this simple background one enjoys to the full the four gilded bronze statuettes representing musical themes. All the illumination comes from the trough-like sidewall fixtures of bronze and etched glass. An ultramarine carpet extends through this hall into the south living-room where, however, it alternates its color with wide strips of black. The quotation from Susan Needham is lettered upon a band of pale yellow





Another corner of the south living-room, showing a chest framed in Italian walnut with drawers faced in Scandinavian birch burl. The gun-metal mirror has an inlaid frame of the same woods. The candle fixture on the wall is lacquered white, and below it the row of thin glass tubes permits a varied flower arrangement

APARTMENT OF ALEXANDER H. GIRARD, ARCHITECT, NEW YORK CITY



In the north study. The base of the chimney breast is in a green marble composition. Above it, a walnut frame encloses a mirror bearing a decorative treatment in holly wood. A ceiling of olive green provides a restful field for the central fixture—an ascending spiral of crystal prisms in a setting of hand-wrought cadmium

APARTMENT OF ALEXANDER H. GIRARD, ARCHITECT, NEW YORK CITY





Against the end wall of the north study, opposite the fireplace and its overmantel (shown at the left in almost a direct elevation) stands a mahogany sideboard bearing an original figure of the Renaissance. The latter is illuminated by the fixtures for both candles and electric lights, wrought in a golden-yellow metal. In the carpet, designed for this room, are combined various reds and purples which are the keynotes for the colors of the room

APARTMENT OF ALEXANDER H. GIRARD, ARCHITECT, NEW YORK CITY



In the dining-room. The sideboard is framed in Brazilian rosewood, the cupboards faced in apple wood. Rosewood is used for the table also, its top inlaid with a variety of lighter and darker woods

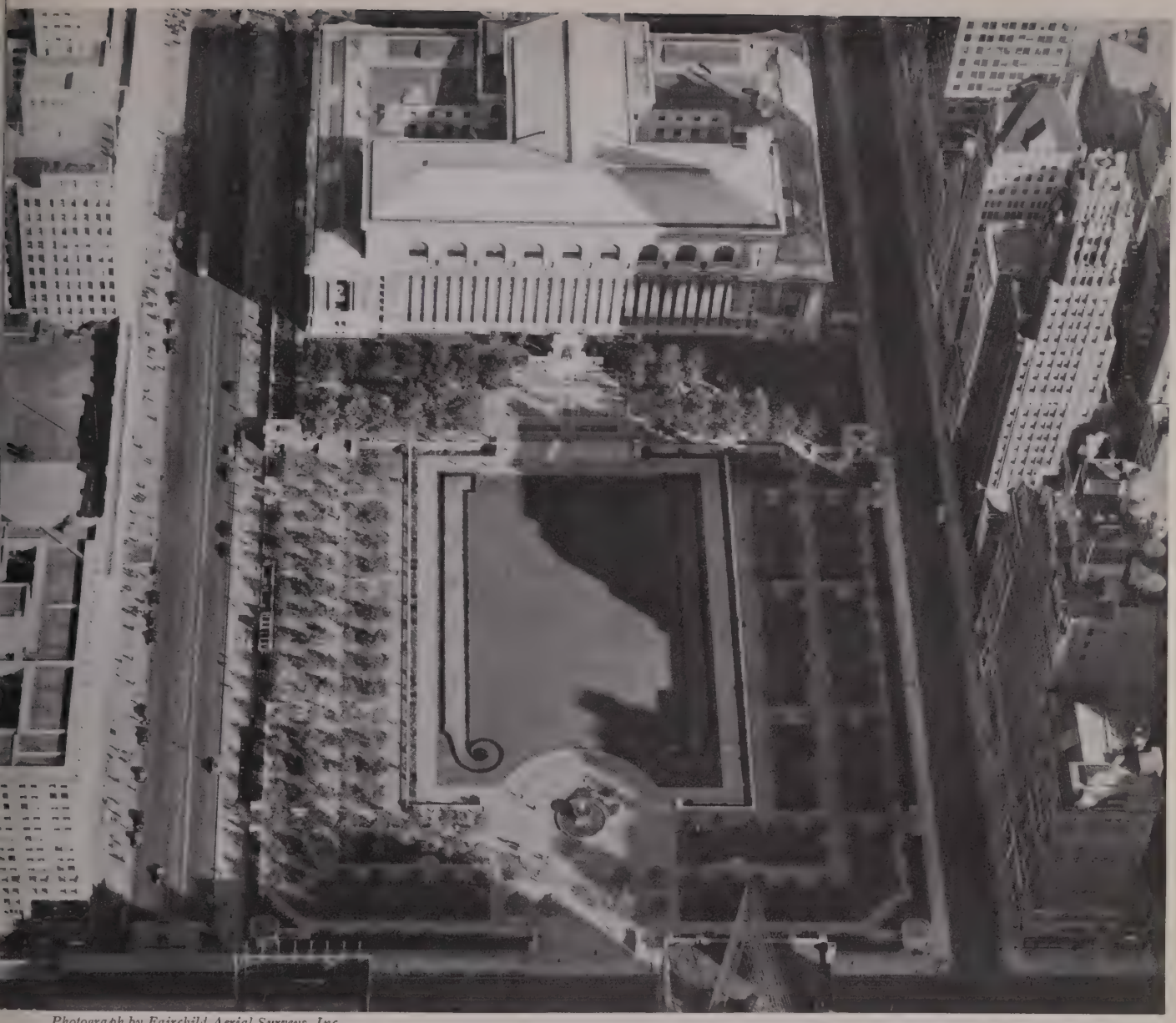


A small bedroom. On the end wall, flanking the window, there is an arrangement of useful cupboards in a form to add to the width of the room. The panels are of walnut; walls white; ceiling a light apple-green



The barroom walls were painted by the architect in a free decoration which relieves the smallness and squareness of the room. The ceiling is dark brown, the carpet a bottle-green

APARTMENT OF ALEXANDER H. GIRARD, ARCHITECT, NEW YORK CITY



Photograph by Fairchild Aerial Surveys, Inc.

There are, scattered through the cities of America, public squares and small park areas which should be worthy of the dependence being placed upon them to supply restful green and growing things in the midst of paving, heat, and the distractions of city traffic. Nevertheless, too many of these squares are of the familiar angleworm pattern of design with paths inviting constant desecration of the sod, with cast-iron railings, Civil War memorials, and perhaps a rusty field gun or two from the Great War.

Bryant Park, recently redesigned and remade, has about it many features that might well serve as a pattern and inspiration for other city open spaces

Bryant Park
New York City

DEPARTMENT OF PARKS: ROBERT MOSES, COMMISSIONER

GILMORE D. CLARKE, CONSULTING LANDSCAPE ARCHITECT; AYMAR EMBURY II, CONSULTING ARCHITECT



Photographs by John Gass

An element in the problem was the necessity of providing an adequate setting for the William Cullen Bryant statue on the west side of the New York Public Library, a statue by Herbert Adams, sculptor. Another element called for the location of the Lowell Memorial Fountain by Charles A. Platt, architect, which is on the axis at the opposite end of the grass panel



BRYANT PARK, NEW YORK CITY. DEPARTMENT OF PARKS: ROBERT MOSES, COMMISSIONER; GILMORE D. CLARKE, CONSULTING LANDSCAPE ARCHITECT; AYMAR EMBURY II, CONSULTING ARCHITECT

The plant material was chosen for its tolerance of city conditions. Trees are the Oriental plane or sycamore; ground covers are English ivy under the trees, grass in the central open panel, myrtle between the rows of yew hedges flanking the turf panel



Photographs by John Gass

Bryant Park was developed in a rather rigidly formal manner because it was felt that small park areas in a great city should have this character, and also because of the fact that the park became a setting for the west façade of the New York Public Library



BRYANT PARK, NEW YORK CITY. DEPARTMENT OF PARKS: ROBERT MOSES, COMMISSIONER; GILMORE D. CLARKE, CONSULTING LANDSCAPE ARCHITECT; AYMAR EMBURY II, CONSULTING ARCHITECT

A competition held by The Architectural League of New York, in which Major Clarke was a member of the jury, produced as the winning plan one which had practically the same parti as the finished work, though not resembling the final solution in any detail. The winner of this competition was employed part of the time in the work of preparing the final plans



Photograph by John Gass

The dominating element of Bryant Park is the great panel of turf, accented in its longer dimension by the bands of yew hedge at the sides. In order to make sure that this turf would remain really fresh and green through the dry summer months, an automatic sub-surface sprinkler system was installed, which is not apparent except when in action

Municipalities are likely to raise the point that a really good and well-kept area of green in a city involves considerable maintenance expense. Major Clarke is of the opinion that this particular area could be kept in satisfactory condition through the labors of but two competent men

BRYANT PARK, NEW YORK CITY. DEPARTMENT OF PARKS: ROBERT MOSES, COMMISSIONER; GILMORE D. CLARKE, CONSULTING LANDSCAPE ARCHITECT; AYMAR EMBURY II, CONSULTING ARCHITECT

TRAVEL NOTES *of an* AMATEUR HOUSER

By B. Charney Vladeck

Member New York City Housing Authority

August 25, 1935

Spent a day at Plessis-Robinson near Paris. This is one of the most ambitious low-cost housing projects in France. Four thousand apartments were erected on a beautiful plateau overlooking the Valley of the Seine, but only about 400 of them are occupied—mostly the single-family cottages. The architecture is indifferent, and the neglect of landscaping—there being cinders and weeds all around—adds to a feeling of disappointment. The rentals are ridiculously low, amounting to about $20 for a six-room cottage per month, including taxes, heat, light and water. The whole project is provided with sinks which drain peelings, leavings, and all kinds of refuse except paper and bones. Housewives are very enthusiastic about this improvement and I have been thinking why we haven't got it in the States.

August 28, 1935—Prague

Very little is known in our country of the large amount of housing done in Czecho-Slovakia. Dr. Satava, of the Ministry of Social Security was kind enough to take me to see some of the housing in Prague. Small dwellings, consisting of one room and kitchen at the most, make up almost two-thirds of all existing dwellings, old and new, in the Czecho-Slovak towns having a population over 10,000 people. The percentage of small dwellings is still greater in smaller localities. A two-room dwelling is typical among the middle classes. The rooms are very large and cheerful and the rentals are based on approximately one-sixth of the tenant's earnings. The overhead is negligible, as no services are provided except repairs, and the rent, as a rule, is being collected in each apartment house by one of the tenants on a voluntary basis. Most interesting is a project for couples, of which half has already been occupied, consisting entirely of one-room apartments with a stove in the back. Altogether, Czecho-Slovakia, which started as a republic from scratch fifteen years ago, without money and without experience, has built over 620,000 apartments, of which 25 per cent were erected with state assistance. The government has tried all forms of assistance, including tax exemption and outright grants, but has settled down on loans at 2 per cent interest and long amortizations. Most of the public housing has been done by building co-operatives. The design of Czecho-Slovakian housing is invariably mediocre, and the building scheme, on the whole, lacks uniformity—all of which is explained in part by the fact that architects were rarely used in the preparation of plans. Altogether the government has granted in loans and grants for housing purposes over six billion Czech cronen, amounting to about $280,000,000 in our money.

September 7, 1935—London

Have spent a whole day at Stepney, the famous London East Side, looking over some of the slum clearance done both by the London County Council and the Borough of Stepney. Frankly, it is very disappointing. The balconies running along each floor shut off light. The courts are mostly covered with cement and are being used for drying the wash. Wherever there are little parks or flower-beds, they are kept under lock and key. The layout of the rooms is uneconomical and the rentals are comparatively high, reaching in some projects to $20 per month and more, which is a pretty big slice for workers who earn on the average not more than $40 to $60 a month.

September 8, 1935

A quiet, peaceful and lonely day at Welwyn Garden City. The finest thing is the simple impressive memorial to Ebenezer Howard. The streets are wide, the architecture quite indifferent with the exception of some cul-de-sacs which are really beautiful. On the whole it is quite nice except for the feeling that it is some kind of an experiment—not something rooted in the soil and coming up from it naturally as the trees and the grass. On the way back by bus to London, I stopped off at a number of places where housing is being done privately. Most of the houses are rather cheap and small, and both the construction and the architecture are commonplace, and yet one can buy a house in the environment of London for as little as $2500, and it seems that quite a number of people are buying them; the London Saturday newspapers contain so much real-estate advertising that one is reminded of the good old days in the United States.

September 11, 1935

Mr. Herbert Morrison, chairman of the London County Council, was kind enough to provide me with a car and a guide to see some of the Cottage Estates. We picked both Dunham and Bellingham, because one is an older and one a newer project, and also because both are of medium-size. One is impressed with the cleanliness and general good appearance of the estates and also by the low rentals, which seldom reach over twelve shillings a week. At Dunham it was interesting to visit the year 'round open-air school for physically deficient children, conducted very efficiently and with great success by the Board of Education. The streets are wide, with many flower-beds in the front yards but with too few trees. The plan-



In the garden city of Vreewijk, Rotterdam. The Dutch have a feeling for materials

ning is simple, rather uniform; and one cannot help but feel that here is somebody planning for somebody else.

September 12, 1935

The KLM airplane, carrying me from London to Amsterdam, flew right over the public housing projects of The Hague. They look very beautiful from two thousand feet up, and one can immediately recognize a planned public project. At Amsterdam, the same day, Assistant Housing Director Zimmerman showed me some of the 78,000 new houses erected in that city within the last fifteen years. The strongest impression one gains from Amsterdam housing is that it is entirely undistinguishable from private housing. Whether it is a row of apartments or a street of single-family dwellings, one can never tell that these are workers' quarters. Neither do the rooms look as small as one knows them to be from statistics. The Dutch housewife somehow has a sense for living, and the furniture and its arrangement are in full keeping with the size and nature of the room. In comparison with France and Czecho-Slovakia, the rent is high, but all who pay five gilders a week or less are exempt from taxes.

September 13, 1935

An early morning train took me to Hilversum, a new city built for the skilled workers and middle class of Amsterdam. Three outstanding impressions are retained by memory:

1. The City Hall, built by W. Dudok. The building in itself is completely modern, is beautiful, and the landscaping around it supreme. The only criticism one can offer is that it should have more space around it and that its angularity is not entirely at home with the curves of the streets and roofs around it.

2. A new school built in front of a tremendous lawn hedged with flowers and covered with a thatched roof treated against fire. A remarkable piece of work, odd but beautiful.

3. The Blumen-Quartier. A new residential low-cost housing quarter, the most cheerful, simple, and impressive project of its nature that I have ever seen.

September 14, 1935

The Rotterdam houses on the whole are of the same high standard as those of Amsterdam and Hilversum, except that some sections are particularly beautiful. At one street corner I stood for I don't know how long, and could have stood much longer, admiring the landscaping, the flower garden and the simple, beautiful houses. The same heap of bricks and shingles will produce a house in England and a home in Holland. Somehow the Dutch architect and builder have a feeling for the materials with which they work, and know how best to fit them into the scheme of a home. They use their roofs like ladies' hats—10 per cent for utility, and 90 per cent for variety and color. The basic plan is rather uniform throughout, but each house assumes individual color and meaning. I would like to see some of the Dutch craftsmanship in the United States. In Rotterdam I also saw a large apartment house built entirely of steel and glass, with only the outside staircase partly encased in brick. It looks interesting, and I have been told that all apartments are occupied, but I wouldn't like to live in a glass house. Altogether, housing in Holland has become an integral part of the economic function of the nation, and an analysis of the means used by the government to encourage housing would prove very profitable. Of particular interest are the Public Utility Societies, the equivalent of building co-operatives, who erected 150,000 dwellings, and to whom the government advanced about $400,000,000 in long-term loans. The average economic rental in Amsterdam in the Public Utilities Society house works out thus:

Interest at 4.223 on $1700, which is the average cost of construction per apartment	$71.74
Land lease	44.20
Water supply	14.96
Maintenance and administration	31.96
Fire insurance	.68
Taxes for site and streets	26.52
Loss of rent	4.42
Total	$194.48
Per week	$3.74

September 17, 1935

Most construction in Belgium was done in connection with the rehabilitation of devastated areas. But there is also some low-cost housing, of which I had a chance to see only that of Antwerp and Boitfort, near Brussels. In Antwerp there are five-story apartment houses well built but architecturally indifferent. The rent is ridiculously low, which is a great redeeming feature for a country in which seven dollars a week is considered a good wage. The four or five hundred single-family homes near Brussels are occupied by professionals and civil-service employees, and they impress one very favorably. Located on a piece of sloping country, surrounded by woods and fields, with enough space for small gardens, they are cheerful, practical, and economical. But in one of the houses I visited, I noticed that the shower was being used for a clothes closet. There is also an apartment house—one of the finest I have ever seen—built around a semicircle, well cultivated, with lawns and flowers. It starts with two floors, rises to three floors, then to four floors with a nine-story tower in the center. It is well conceived, well executed, and where land is cheap it might serve as a model.

There are no vacancies in any of the housing projects in England, Holland or Czecho-Slovakia, and the director in charge of Plessis-Robinson tells me that before long the other 3000 apartments still vacant will be filled, as soon as the transportation problem is properly solved.



In Brno, Czecho-Slovakia, recently erected by the building co-operative "Commonweal"



New housing in Holland, built by one of the largest public-utility societies in Amsterdam



Photograph by Richard Averill Smith

{ IN THE SERIES OF ONE HUNDRED SMALL HOUSES }

"We think of this building as an engineering success which we are glad to have judged by architectural standards. It is cool, though the owners were warned that no building in that location could be made comfortable in summer time."

ROSWELL F. BARRATT

The tea house is situated high up on Canoe Hill at Washington Hollow. Its isolation fits it particularly well to the purpose of the week-end visits for which it was designed

ROSWELL F. BARRATT, ARCHITECT

Tea House of Mr. and Mrs. Melbert B. Cary, Jr.

Dutchess County, N. Y.



Photograph by Richard Averill Smith

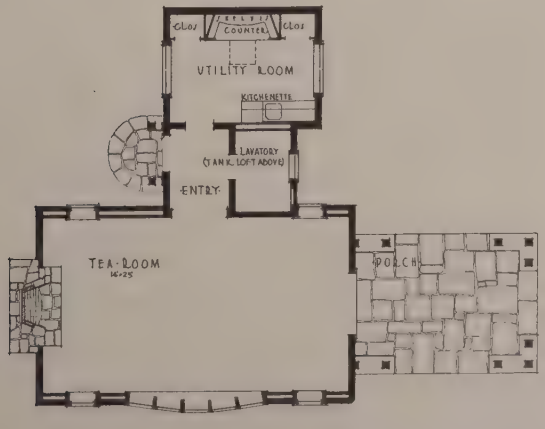
The chimney is built of greenish-gray slate found on the property, and is flashed with lead

TEA HOUSE OF MR. AND MRS. MELBERT B. CARY, JR., DUTCHESS COUNTY, N. Y. ROSWELL F. BARRATT, ARCHITECT



Photograph by Richard Averill Smith

Inside, the tea room is rose tan with a gray ceiling. The architect has used a composition wall board instead of plaster, and has secured a decorative effect in both wall and ceiling through the use of carefully studied lap joints in place of the more common battens



TEA HOUSE OF MR. AND MRS. MELBERT B. CARY, JR., DUTCHESS COUNTY, N. Y. ROSWELL F. BARRATT, ARCHITECT





Photographs by Richard Averill Smith

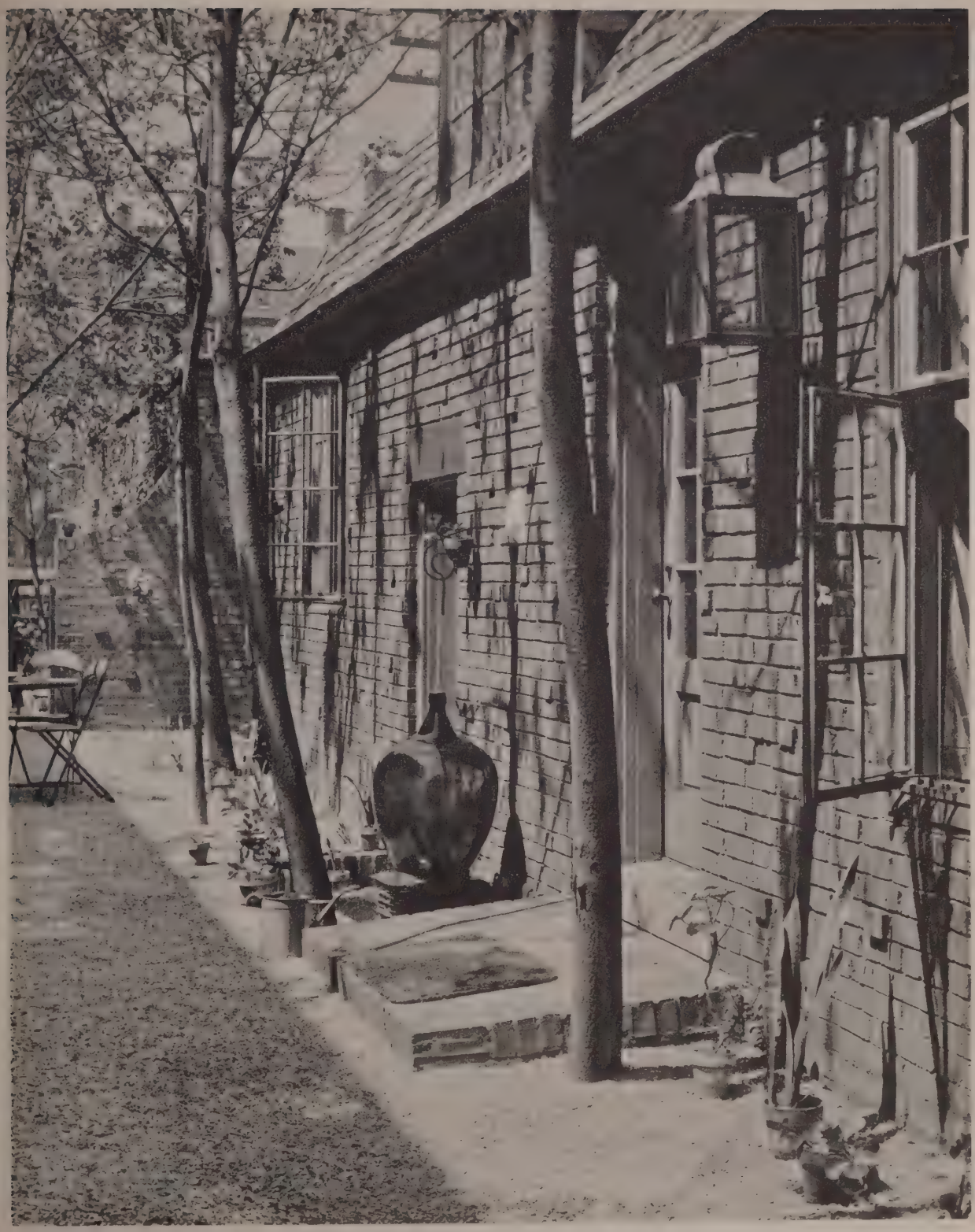
In the utility room, the walls are lemon yellow with dead-white trim

The use of high rooms, including the porch, has aided in maintaining coolness

In color the shingles and woodwork are all finished with a silver-gray stain. The roof is of shingles stained grass green. There is no attempt made to maintain the setting with lawn or planting requiring attention. Rather, the tea house is built in the woods



TEA HOUSE OF MR. AND MRS. MELBERT B. CARY, JR., DUTCHESS COUNTY, N. Y. ROSWELL F. BARRATT, ARCHITECT



"I like my house because it has allowed adequate and comfortable living in spite of changes in utility and demand during its existence of thirteen years. It gives complete comfort and seclusion even in a semi-business section." D. Allen Wright

{ IN THE SERIES OF ONE HUNDRED SMALL HOUSES }

House of D. Allen Wright, Architect, Detroit, Mich.

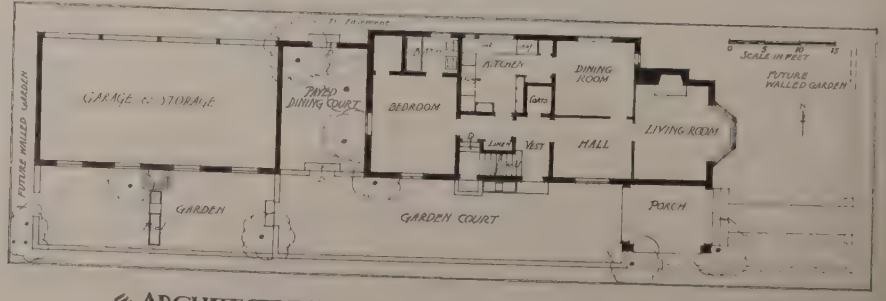


The brick is a sand-finish one in salmons, pinks, and purple reds. For the roof, a gray-green slate has been used, with some very deep purple in it. Woodwork is rough cypress stained a very dark brown, almost black. Sash are gray-green. In the court paving, common brick in deep red colors has been used, and the stone is a light gray



The south side of the hall. Walls are gray; the ceiling, a blood red, glazed out. For the hangings, a brilliant red chintz has been used, with blue and yellow figures. On the floor there is a block pattern of linoleum in red and brown

Photographs by



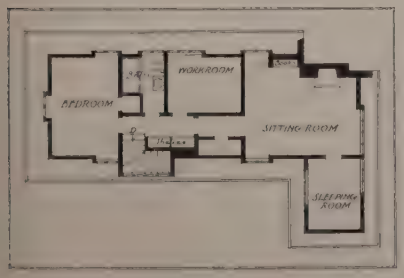
Contrasting with the rough cypress woodwork and the brickwork, the main entrance door just beyond the entrance porch is painted a light creamy yellow, antiqued. On the other side of the house, the service door is painted a medium Prussian blue, antiqued. The space in front will eventually be walled in for a garden





The dining-room, in which the plaster walls and ceiling are painted a dark old blue, brushed on unevenly. Hangings are of chintz in red, blue, and cream. The same linoleum pattern as in the hall is used here, and is partly covered with an olive-green rug

Elmer L. Astleford



The plan is dictated largely by a lot that is only 33 feet wide, in a semi-business section of the city, and its walled-in courts give an opportunity for outdoor dining and entertaining not often found in the small house. An easement of 20 feet on the north side provides a driveway

HOUSE OF D. ALLEN WRIGHT, ARCHITECT, DETROIT, MICH.



In the living-room, the plastered walls are dark red of an even color but with a brown cast. The ceiling is almost the same depth of color as the walls in a grayed blue-green. The pine walls are blackish brown with the slightest green cast. Carpet, a dark mouse color



Southwest corner of the living-room, with a glimpse of the hall and its south window. The furniture is of very dark oak and walnut upholstered in varying rust and red colors. Hangings are of yellow chintz and reddish brown and white chintz



A corner of the second-floor bedroom. Walls and ceiling are yellow; woodwork, gun metal; carpet, olive green; hangings, yellow chintz

BETTER PRACTICE

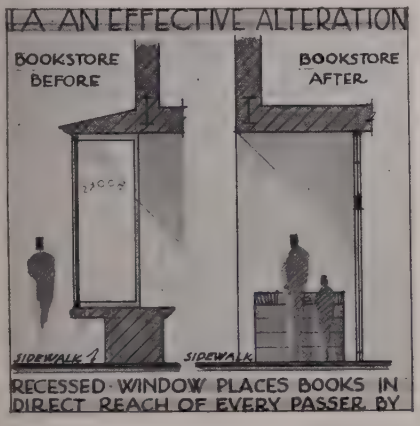
By W. F. Bartels

STORE FRONTS

1—GENERAL

THE location and type of a store are determined by the volume of traffic, and a corner is generally regarded as being 30 per cent to 50 per cent more valuable for store location than an inside plot. This increment in value may not always hold true, however, because in a crowded area a site in the middle of a block may become as valuable as the corner. A fallacy among many shopkeepers is to establish a store far away from stores of similar types. Except in very unusual cases this should not be done.

Many stores depend to a large extent upon converting window shoppers into purchasers. However, the



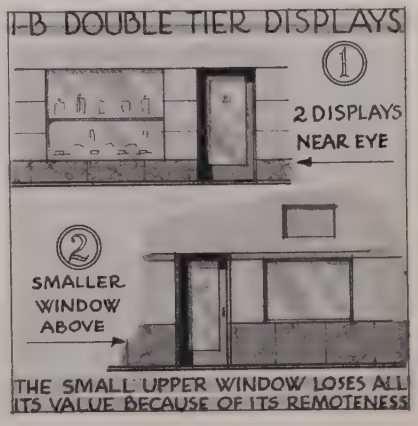
architect should not lose sight of the fact that today many people pass the shops in automobiles, consequently the architect must also make his design arresting from the street. To further the visibility of the store from the street he should see to it that, as a part of the design of the façade, clear, well-lighted signs are used. The architect in laying out his store front must not only keep in mind the psychological effect it will have upon passers-by, but he also must keep constantly in mind the practical features which will attract attention to the store. In crowded urban centers, and particularly in New York, the design of arcade stores is very important. Second and third floor window space is often more valuable as advertising space than for any other purpose.

It must be borne in mind that the successful shopkeeper must be a good showman. This does not mean that the front should necessarily be garish, but there are many designs that are in good taste and that will not only attract attention but induce passers-by to enter the store. A most important fact for the architect to remember is that the merchandise should not be secondary to the store. The shop front should be an appropriate foil—it should not "steal the show." Improved modern transportation facilities have reduced the necessity for carrying large quantities of surplus stock. This has resulted in smaller stores and consequently smaller shop windows. The architect must therefore concentrate every effort upon this smaller front in order to give the effect of a larger store than it actually is.

It has been said that the "best store front is no front," and for many lines this rings true. After all the store itself is the best display the merchant has to offer, if it can be brought out where the public may see it. Restaurants have tried to achieve this idea by having movable window fronts which can be raised or pushed aside in pleasant weather. Another type of store front in which it has been desirable to establish close contact with the public is the second-hand book store. This has been achieved by having a recessed front set back a considerable distance from the building line. It allows a protected space for the prospective customers to browse among the books (Fig. 1A).

The depth of the modern show window has been considerably reduced, not only because it has been found that shallow windows can be more attractive, and more readily dressed, but because it saves valuable floor space. If the building stands alone the architect has a much easier problem than where the store front is only a small part of a large building and must harmonize with it. In some cases this problem has been solved by having the entire front resemble a portal or entrance to the building itself. Double-tier show windows may be used either with the idea of two displays near the eye level, or by having one main window with a small one set above it (Fig. 1B). The latter should have visibility from the other side of the street as well as from the near side, but unless carefully handled the upper window loses considerable advantage because of its remoteness.

The front of the store should be as free from trap doors, gratings, or stand-pipe connections as possible.



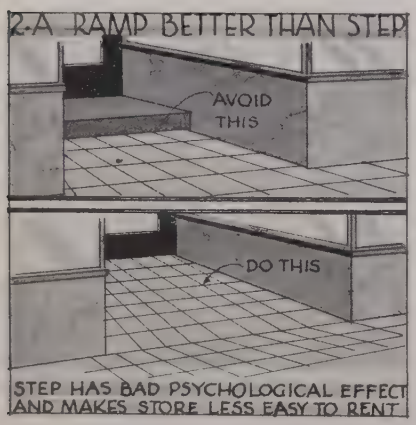
Stand-pipe connections tend to keep the people from window shopping. Even though trap doors are of substantial construction, they cause a subconscious feeling that they may be opened or may give way. Gratings are a sure way to keep female shoppers away from the windows, because high heels are almost certain to suffer (Fig. 1C).

In any show window there should not be any columns or other obstructions visible. Where the latter cannot be removed the windows should be studied to take these into account. Sometimes it is possible to dispense with corner columns of corner stores by means of cantilevered I-beams or other similar solutions. The architect must keep in

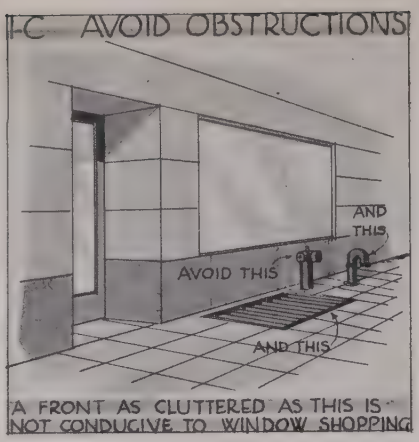
mind, in laying out any shop front, that it must attract customers, and not repel them by a too lavish or extravagant façade, because few shoppers will enter any store whose display framework makes the merchandise appear more expensive than it really is.

2—ENTRANCE

One of the first aspects for the architect to consider for the entrance is the level of the sidewalk as compared to the level of the store. It produces a deterrent effect when one must go up or down stairs to a store. Real-estate appraisers will vouch for the fact that store values are considerably lessened by such conditions. Furthermore, there is always danger of a customer tripping or falling, and bringing suit for damages. When there is a slight difference in levels this is best overcome by having a gently sloping ramp, rather than a step (Fig. 2A). Coupled with the fact that this is more desirable from a psychological point of view, it reduces accidents. The material forming the ramp should have a non-slip substance in it so that even in wet weather there will be no danger of slipping. Where it is necessary, such as in high-priced locations, to have the store proper above or below the street level, access to this should be so arranged that there will be little feeling of going up or down steps.



The entrance should be so laid out that there will be a greater tendency on the part of window shoppers to enter rather than to pass by. The deeper the entrance the more show space, but this must not be carried to extremes. The entrance should be such that it will attract favorable attention, but it must not give one the effect of entering a Coney Island side show. Consideration must be given at the entrance to space for door mats. Whether such space is to be recessed or not will depend upon the type of mat to be used.



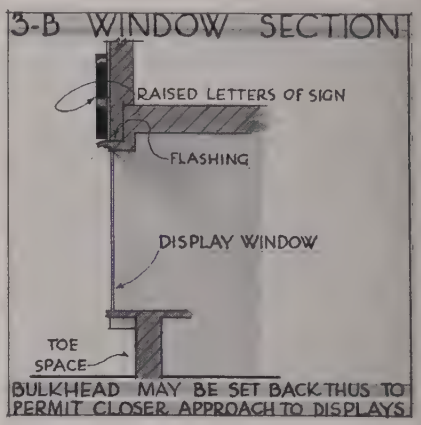
3—WINDOWS

Taking account of the relation of window displays and the necessity of having proper signs above them, the modern architect has utilized what might be termed the "optical area" for advertising. Decorative non-essentials of such fronts should be kept to a minimum, and necessary signs used as an ornamental frieze (Fig. 3A). The materials used for store fronts should be of a sort that the weather will not affect adversely, and that will not have to be constantly cleaned. Among these will be glass, marble, tile, metals of varying composition, and metals which have been enamelled. It should be kept in mind that the expansion and contraction of metals or other substances used in the store fronts must be carefully looked into.

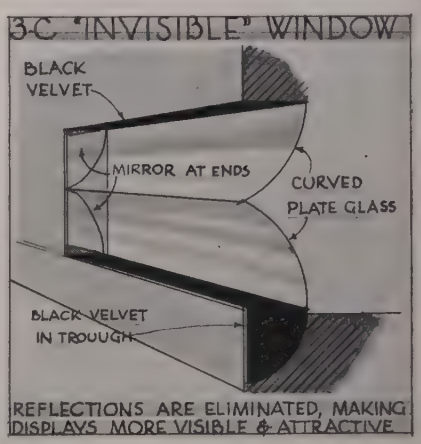


Joints, naturally, should be such as will keep the weather out.

High glass windows do not allow one's eyes to concentrate on the merchandise displayed in the window. Large sheets of glass reflect more rays of light, disconcerting to the person looking in the window. Most large windows have now disappeared, being replaced by lower ones. For the average store it is suggested that the head of the window be not more than 8′ or 8′ 3″ above the sidewalk (Fig. 3A).



Following the theory that it is much easier to focus the eyes on a small space, some architects have made the windows in their store fronts very small. While this has the effect of attracting attention, it limits the display possible.



Where cornice effects are used, they should be well flashed so that there will be no danger of water leaking into the window. In some cases it is desirable to set the window bulkhead back, as this gives the feeling that the store window is projected and allows one to stand nearer to the shop window (Fig. 3B).

A new type of window now causing considerable favorable comment is one which appears to be without glass. Two curved sheets of glass are used. Mirrors fill the reveals. The lower glass extends to the floor, and the back of the bulkhead in front of it is backed up with black velvet. The head of the reveal is



also covered with black velvet, with the result there are no reflecting or disconcerting lights. The effect is excellent, and even in New York this type attracts considerable attention (Fig. 3C).

4—MATERIALS

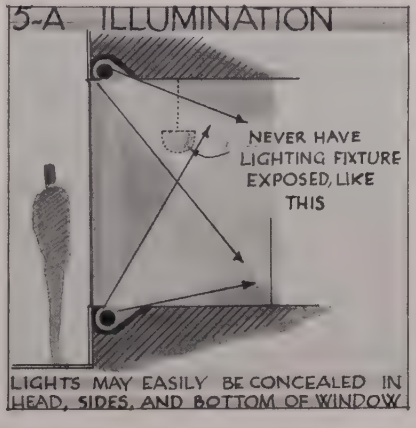
A wide variety of materials have come into use in the last few years, producing a sleek, clean-cut appearance. Many of the thin-gauge



metal sheets can be used effectively, but unless well designed and equally well executed the effect is that of an impermanent one-night stand. The time-tried materials, such as marble, bronze, and cast iron, can be made to produce results as up-to-date as any of the newer materials, but the architect should take cognizance of



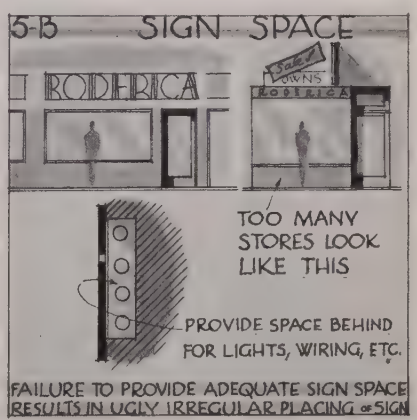
the trends in modern merchandise display and design. In using thin-gauge metal the architect does well to determine the stock and maximum lengths of materials. Where plain façias abut, a flush joint cannot be relied upon to make an entirely satisfactory appearance. It is best to make joints a part of the design, employing either a pattern of ornamental screw heads, or frankly use a strip to cover the joint in such a way that it will be an integral part of the design. The architect should investigate advisable gauges, as well as chemical composition of sheet



metal. His superintendent should see that no substitutes are made—but this cannot be ascertained by a casual glance.

One common fault of metal doors is that they frequently are too difficult to operate for women customers. Nothing is more repellent than for a customer to feel a door is locked. While doors should be easy to operate, they should be sufficiently substantial to withstand hard and constant usage. Drafts in cold weather should be prevented either by double doors or revolving doors. In winter ample heat should be provided in vestibules.

The quality and type of show-window glass used must be clearly specified, because there is a wide divergence in quality, which will of course be reflected in the price. It is actual economy for only the best glass to be specified and used, but the architect must be on his guard to see that an inferior quality is not substituted. Where large sheets of glass rest in metal frames, they should be set on soft materials, such as lead or wood, and be given plenty of room for movement and expansion (Fig. 4A). This is particularly true where there is a fixed sash. The frame must be so made that any slight settlement in the building will not cause the glass to crack or break (Fig. 4A). All metal work must be properly flashed so that there is no danger of water getting in behind the materials to cause damage. The material comprising the



lower part of the window bulkhead should be capable of withstanding hard usage. When one inspects buildings of five years of age and finds granite that is damaged it is understood why this suggestion is made.

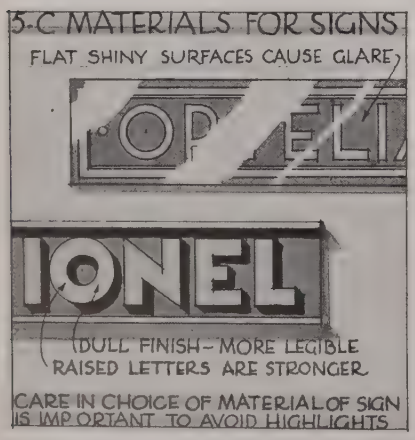
If an alteration to a store front is contemplated and a temporary fence or barricade is necessitated, the architect should not overlook this as an advertising medium. It is worth all the thought which can be given so that it may be attractive. It may be possible to have windows in it so that the store will not have a closed appearance during the alteration, or small show windows may be inserted with successful results (Fig. 4B). In alteration work on store fronts one

of the most expensive items is the glass. Hence if the architect can so plan his front to re-use the old glass it may be possible to save a considerable amount on the small job. Often a small renovating job is so carried out that it may be used as either a single or double store. In jobs of this type the doors are together at the center with show windows on each side, and with a glass panel or ornament running entirely across the front. Upon dividing up the space, a wall is erected on the center line of the doors, but usually no provision is made for a dividing partition above the entrance vestibule. This not only presents a danger that fire might easily spread from one store to the other, but does not allow the tenants to fully close their stores. This can be overcome either by building a projecting angle or other structural member in the wall during construction, or hanging a partition to the ceiling after the job has been completed (Fig. 4C).



5—ELECTRICAL

The lighting of a store window will depend to some extent upon how the adjoining stores are lighted. No store can afford to be more dimly



lighted than its neighbors. Also, there must be a great flexibility in the lighting layout. There must be many outlets and circuits so that any desired effect may be obtained. While there should be adequate lighting there should be no glare. The lights themselves should be concealed from the spectators (Fig. 5A). It is also well to diffuse the light as much as possible so that it will be flattering to the display.



Electricians who have studied the effect of lighting upon passers-by say that as the lighting of a store is increased the number of people stopping to window shop is correspondingly greater and the number of those who enter is increased in proportion.

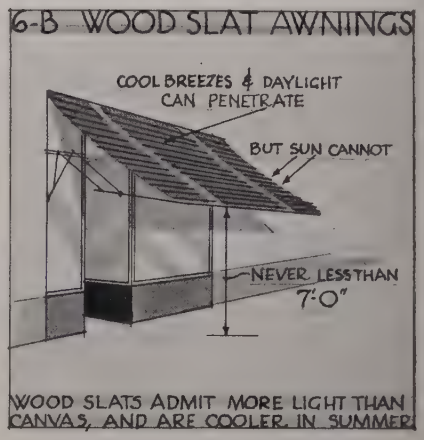


When laying out a permanent sign space above the store space in a new building, the architect should see that the space is large enough for a sign of reasonable size, and that there is enough space in back of it to house the light, wiring, etc. (Fig. 5B). If this is not done, prospective tenants will want to plaster the front of the building with their own signs, much to the detriment of the building. The individual signs of all shops are less obnoxious and equally effective for the owners when they are all one size and thereby form a frieze. When signs are placed above the store front the architect must be very careful of the lighting. The surfaces of the materials must be considered, because if they are not there may be high spots and glares instead of a well-lighted effect. This is particularly true where highly polished or shiny metals are used. Very often a duller surface would give a better effect (Fig. 5C).

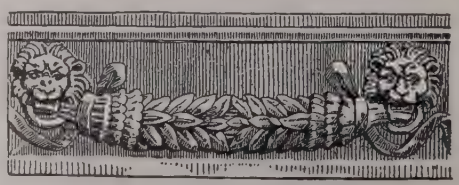


6—AWNINGS

Where store windows are exposed to the sun, awnings should be provided so that the merchandise will be protected. The awnings should preferably have the ends open and should not be of the old closed-end type, which trapped considerable heat. The awnings may be of the concealed type, which practically disappear when rolled up, or they may have special provision made for them by having a box effect over the window (Fig. 6A). A very effective type of awning is the slat type, made of metal or of canvas. These are generally used horizontally, but in some cases can be used vertically (Fig. 6B). The awnings will be particularly necessary where there is a southern or western exposure. When lowered they should be at least 6′ 6″ above the sidewalk, but many local ordinances call for a clearance of 7′ (Fig. 6B). The mate-



rial composing them should be fireproof, so that cigarettes thrown on them will not start a fire.



NEW HOUSEBUILDING TECHNIQUES

Introduced by the technical survey made and reported by the FHA, which was printed in ARCHITECTURE'S *November and December issues, we purpose reviewing in detail these new methods and materials. A snap judgment among them is impossible. For the present, all we can do is to present the new systems. Their ultimate acceptance or rejection will depend largely upon your faith in their merits and your willingness to submit them to the test of use—"the proof of the pudding . . ."*—EDITOR.

The Metaforms System

BY GERALD F. DINGMAN

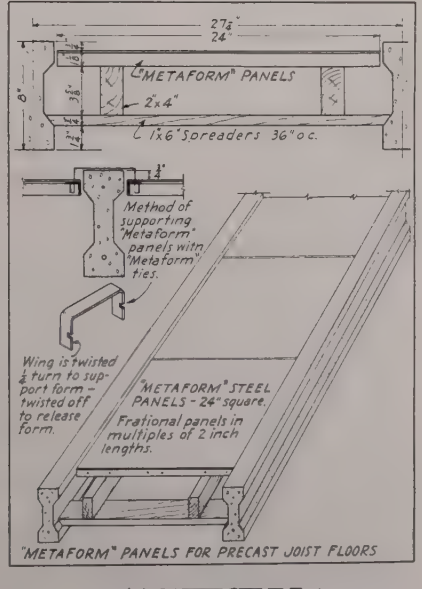
IN the search for new materials and the development of new techniques in housebuilding, flexibility—adaptability to variations of individual design—has been a prime consideration.

The Metaforms system, developed by the Metal Forms Corporation of Milwaukee, involves the use of sheet metal form units which were originally designed for industrial and large-scale building, and have been used on that type of work for some years by builders in different sections of the country. These units are made in a small, easily handled size, and fractional and corner units are provided, so that they are readily adapted to structures of almost any design that the architect and owner may desire.

The standard Metaform unit is a 24″ x 24″ sheet of sixteen-gauge steel, reinforced along each edge and across the middle with 1″ x 1″ angle irons. The angle iron around the edges serves not only as reinforcing, but also as a frame for holding the unit in its place. Each unit is provided with two clamps on one of its vertical edges, for locking it to the adjoining unit, and the horizontal edges are punched to receive dowel pins for lining with and fastening to the units above and below. The fractional units, which are furnished in widths from 2″ to 22″, and the corner units, are equipped with the same fastenings as are the standard ones, so that they are an integral part of the form structure and present no special difficulties of erection. In addition to the form sections themselves, combination spreader-ties have been developed to provide accurate spacing and to simplify the work of erecting them. These metal ties, two of which are used to each Metaform section, are flat strips that fit through slots in the form units and are notched for spacing the forms. A special tool is used to break them off at the form surface after the concrete has set.

Inasmuch as these form sections are constructed expressly for solid wall structures, their use is more or less limited to that type of construction, and they are not suited to hollow double, insulated double, or ribbed wall construction. However, it is believed by those who have used this system that the solid wall will fulfill all the essential requirements of residence building. And within that general limitation as to wall type, metal forms in small units are adapted to almost infinite variations, so that the architect is free to design the house with whatever features of plan or elevation he might incorporate in a building erected by any other method.

A residence designed by Robert Schultze and built with Metaforms by the Charles Gambsky Company was completed recently at Menasha, Wis. The foundation was much the same as a concrete foundation for any other type of house, excepting that wood blocks were set against the top of the inside form to provide slots in the foundation slab for the precast concrete floor joists, and that reinforcing steel in the foundation slab was left projecting to be tied into the wall. When the foundation was completed, the joists for the first floor were set in place and grouted solid.



The first course of Metaforms was then placed on the foundation so as to form a 1″ setback around the outside of the entire structure. Reinforcing steel for the wall was tied to the spreader ties and to the rods that were left projecting from the foundation. Two-by-four "wallers"—or horizontal aligners—were clamped to the inner side of the forms, at the bottom. Window and door frames, which were of wood, were built out to the thickness of the wall (8″) and braced sufficiently to withstand the weight of wet concrete. The frames were then set in place in the forms and fastened with nails driven through holes in the Metaform panels. When all openings for the first floor were thus provided for, the forms were built up five courses to story height. Reinforcing, consisting of ⅜″ round rods, 12″ on centers vertically and 9″ on centers horizontally, was tied to the spreaders as each course of forms was placed, and horizontal nailing strips were set against the inside forms every four feet. Wallers were then clamped along the inner side of the forms at the upper edge, and occasional vertical liners were placed as the work progressed.

Staging was built up from the first-floor joists, and runways provided at the second-floor level for barrows, which were hoisted from the mixer by means of a tower built up to the full height of the building. Concrete was then placed for the

full story height, in 12″ layers. Wall construction for the second story was much the same as for the first, except that the second-floor joists were set in place on wallers before concrete was placed.

The precast concrete joists for both floors were the standard type reinforced concrete joists having panelled sides and provided with ¼″ iron stirrups at the top. While precast joists are not particularly new to residence construction, it is interesting to note that they are peculiarly adapted to such an all-concrete construction as that used in this house at Menasha. Being 3″ wide and spaced 27″ on centers, they permitted the easy installation of Metaforms to receive the floor slab. The Metaforms were supported on 2″ x 4″ stringers over wood spreaders, the ends of which were bevelled and inserted in the panels of the joists. But what is more important from a structural viewpoint, the stirrups, which are tied securely to the longitudinal reinforcing in the joists, served to connect the floor slab integrally to its supporting structure. This effect was enhanced by the fact that the bottom of the slab was placed ¾″ below the top of the joists, so that a firm bond of slab to joist was achieved. The principal reinforcement in the slab was of course transverse to the joists. In the house at Menasha this integral slab construction was used for both the first and second floors and for the roof.

This method provides for all the usual types of finish flooring—wood, terrazzo, concrete tile, rubber tile, and linoleum—and makes possible also a floor of colored or plain concrete. Beam ceiling effects are also easily obtained, since the Metaform panels produce a smooth lower surface on the slab. The joists are left exposed, either painted or not, depending on the character of the room. Plaster on metal lath is used to obtain flat ceilings.

Openings for trades were provided through the joists where required, at the time they were cast. Horizontal pipes and conduits parallel to the joists were run through sleeves cast in the floor slabs. Vertical lines were carried up through the interior partitions and through the furred space behind the plaster at the outside walls, boxes or channels having been provided in the concrete walls where the furred space was not adequate.

Since nailing-strips were provided on the inner sides of the walls they were adaptable to a great variety of interior finishes and to any of several types of insulation. Double insulation was used in this house. Furring strips, 2″ x 2″, were nailed to the wall to receive the half-inch insulating board that was used as a plaster base, and the two-inch space between the insulating board and the concrete was filled with rock wool.

Interior partitions were built of cinder block masonry, and precast concrete joists were used as lintels over all the openings in them. This construction is light in weight and fire-safe, and is readily adapted to the plaster finish used, or to any other of the usual interior finishes.

For the exterior finish, the monolithic concrete wall itself was used. Forms were stripped as soon as the concrete had hardened enough to hold its own weight. Then, while the concrete was still damp, ties (which when twisted off still protruded about a quarter of an inch from the wall) were pounded back to the surface of the wall from the outside and bent over on the inside. The wall was cleaned and brushed with a stiff wire brush to remove form marks and roughen the surface. A cement mortar coat was then floated on and textured, and the walls were cured by wetting them with a fog spray. The final effect was achieved by painting with white Portland cement paint to produce a hard white surface.

It should be noted that, while the Metaforms system of monolithic concrete construction is peculiarly well suited to the so-called modern styles of architecture, it is not at all dependent upon them. Pitched roofs, for instance, may be built over such concrete structures with the same facility as over masonry structures. Likewise, exterior finishes may be varied through a wide range of concrete and stucco surfaces, or, by providing ties or nailing strips in the concrete walls, brick veneer or wood siding may be applied. Either wood or steel windows and doors may be used.

Insulation, an important consideration in any type of residence, might seem to present unusual difficulties with monolithic construction. Yet figures of the Portland Cement Association, based on data of the American Society of Heating and Ventilating Engineers, indicate that even a 4″ monolithic wall, with ½″ of plaster on rigid insulating board furred out 1″, has a noticeably lower coefficient of heat transmission than a comparable wood frame wall.

It is of course difficult as yet to arrive at a comparison of costs between houses built according to the Metaforms system and houses of the more familiar types of construction. The cost of building with any system of re-usable forms must depend largely upon the number of times they are used, and will therefore vary for each contractor with the volume of concrete work he does. Direct comparisons are further hindered by the fact that certain features, such as rigidity and "tightness" (lack of air leaks), may make the monolithic structure more desirable than an otherwise comparable structure of wood frame or masonry. These features may have important effects in reducing the amount of additional expenditure required to provide air-conditioning. They may also have noticeable effects on maintenance costs.

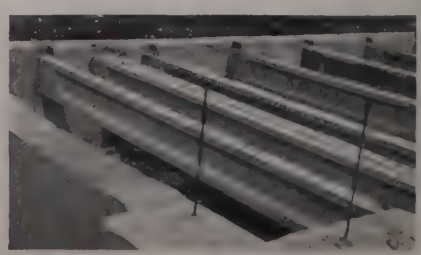
An end view of the forms from above. The spreader ties are seen in place



The window frames, built out to wall thickness, are fastened in the forms before pouring



Precast concrete joists are set in pockets made by putting wood blocks in the forms



The Editor's Diary

Wednesday, January 1.—A day for resolutions. The new year should find the architectural profession progressing much farther toward at least two objectives:

Resolved, That in 1936 we shall learn the difficult but essential lesson of how to serve the small-home builders, eighty-five out of each hundred of whom have suffered and still suffer under the handicap of making the largest and most important investment of their lifetime without competent and unbiased technical advice.

Resolved, That we shall strive to hold our helm steady between two adverse currents: one, urging us to play safe, and use only those motifs, materials, and methods tried and found true by men of the past; another, urging us to be different at any cost, seeking motifs, materials, and methods that will compel the attention of a swiftly moving and perhaps somewhat jaded popular taste. Between these divergent currents lies the true course—along which architecture develops as honest structure, fitted to its purpose, using nothing merely because it has been used before, using nothing merely because it has never been so used, but keeping pace with the march of science and invention and possessing, along with its utilitarian fitness, as much of beauty as our capabilities permit.

Thursday, January 2.—Dropped in to see an exhibition of Swedish textiles at Rockefeller Center today. The peasantry of Sweden have for many centuries satisfied their own needs in clothing and other textile equipment of the home. Industrialism and the machine do not seem to have been able to overcome the powerful impetus that this handwork had gathered unto itself. Fortunately, the Friends of Art Needlework, an association devoting itself to the collecting and study of old textiles, has formed local clubs throughout the nation to develop their product of spinning-wheel and loom, so that there seems no immediate danger of a decline in Sweden's high textile standards.

Saturday, January 4.—I got a chuckle out of the recent A. I. A. announcement in connection with the present state of architecture in this country. The gentleness with which this is phrased, and the careful avoidance of stepping on any one's toes, make it a notable example of diplomatic utterance.

"In view of the prevalent preoccupation of many architects with functional planning, and with full recognition of the research and reasoning so logically expressed in plan and structure, the Institute's Committee on Education believes that the time has come for the expression in our architecture of something beyond the purely utilitarian that might be called either charm or beauty, but without which our creations fail to realize their full possibilities.

"The committee believes that this quality is more likely to be embodied in our architecture when we recognize our debt to the past and the value of its lessons in meeting the problem of today."

Monday, January 6.—Here is a straw which indicates rather clearly the increasing velocity of the prevailing wind. William F. Lockhardt, of Portland Cement Association, was telling me today that occasionally in recent years the association has inserted a small advertisement in a Sunday newspaper, offering to supply information to prospective home builders regarding methods of achieving monolithic concrete construction economically. Lockhardt tells me that the usual return from these advertisements is about five hundred inquiries. An advertisement on the fifteenth of December—at a time when people might be supposed to be thinking more about holiday gifts than building permanent homes—brought seventeen hundred inquiries.

Tuesday, January 7.—Now that we have discovered that tung oil is a good ingredient of some paints, we are not satisfied to bring the oil on its long journey from China, but are cultivating the tung tree in increasing numbers in the Southern states.

Wednesday, January 8.—Harvey Corbett entertained a small group of editors and others interested in his plans to develop more intensively the National Alliance of Art and Industry, of which he has just become president. I think we all agreed with him in believing that there is a real place for an organization of designers—whether they are designing post-offices, table glass, carpet sweepers, automobiles, or what not. I had a chance to trot out one of my pet hobbies, which is the conviction that the architect is really the only individual under our present educational system who is being trained in the fundamentals of design. It is perfectly true that the architect has not always acted the part, and that particularly in years not so far back, he was less of a designer than an assembler of historical motifs. However we believe, I suppose, most of us, that we are thinking more clearly and more rationally about design in these days. Nevertheless, such an association as the National Alliance of Art and Industry will have to protect itself from the efforts, not only of those who might attempt to do a refrigerator in the Queen Anne style, but also from those who, calling themselves stylists, proceed with such activities as, say, streamlining clocks.

Friday, January 10.—There have been figures cited from time to time illustrating the wide variance of building costs in different parts of the country. *The Federal Home Loan Bank Review* reports upon the figures secured covering the construction cost of an identical dwelling as contemplated in twenty-seven cities. Of course, transportation costs and the accessibility of materials are probably two of the chief factors in the variations. Nevertheless, it is surprising that these should vary as widely as they do. The house costs in Baltimore, $5,028; in Cumberland, Md.—only one hundred twenty-five miles away—it costs $6,033; in Chicago the cost is $6,361; in Hartford, Conn., $5,846; Oklahoma City, $5,756; Pensacola, $5,095; in Colorado Springs, $5,972; in Providence, R. I., $6,442; and in Columbia, S. C., $4,337. It is of interest further to note that the house contains 24,000 cu. ft., is of wide board siding with brick and stucco trim, and has a one-car attached garage. Unusual materials and construction features were carefully avoided.

Monday, January 13.—The marvels of organized propaganda were emphasized for many of us today when we gathered in the National Broadcasting Company's big studio to listen to an hour program of the building industry forum. Johns-Manville Corporation had organized it with the purpose of giving a vigorous initial impetus to the home-building movement. There were not so many particularly new thoughts expressed by the eminent speakers representing finance, producers, contractors, architects, and other factors in the building industry, but the weight of the accomplishment, the precise manipulation of the factors on a second-by-second basis, including speakers from Washington and Chicago, Dr. Goldman's band, Tom Howard, George Shelton, Kate Smith, the turning on and off of applause, laughter and community singing, Graham McNamee, and Edwin C. Hill, all these were impressive indeed. One almost expected to find the first of a

(*Continued on page 168*)



"Four and Twenty Blackbirds," a mural by Arthur Crisp



The welded steel frame for "Hearthstone," a country home at Ottawa Hills, Ohio, is perhaps the largest welded frame thus far used in a residence. The walls and floor employ forty-five tons of steel. Myron T. Hill, architect; C. Merrill Barber, engineer

ARCHITECTURAL



Preliminary and tentative study to show the disposition of the land and architectural treatment of the San Francisco Bay International Exposition, to be held in 1938. The architectural commission consists of George W. Kelham, Lewis P. Hobart, Ernest Weihe, Timothy L. Pfleuger, Arthur Brown, Jr., and William G. Merchant. The drawing is by Francis Todhunter



London turned to Chicago for technical aid in the erection of a $6,250,000 building for its International Exposition at Earls Court. C. Howard Crane of Detroit is the architect; Gilbert P. Hall, of Holabird & Root, designed the structure in collaboration with Mr. Crane, and the Hegeman-Harris Company will erect the building, which will contain more than twelve acres of exhibition space, and seat 25,000 spectators



To be installed behind the bar in the Hotel Carter, Cleveland, Ohio



Royal Barry Wills, architect of Boston, whose traditional design, entered in the General Electric Competition last year, turned out to be the most widely chosen for building, has faced to the left in the design of this professional building for a dentist in Melrose, Mass. The drawing is by Hugh Stubbins

NEWS
in
PHOTOGRAPHS



The "Hall of Waters," a PWA project at Excelsior Springs, Mo. The building, shortly to be erected, is to cost about $750,000, and will contain the offices of the city officials, a mineral water swimming-pool, hydro-therapeutic baths, and a bottling plant. Keene & Simpson, architects; Hare & Hare, landscape architects



Akron, the city of which rubber is such an important element in its commercial life, now has a rubber room in the Hotel Portage. Ivor Johns designed the murals, which are to be executed in rubber flooring, cut and assembled by M. J. Baldwin. They depict the rubber industry and the high points of its history

(*Continued from page 165*)

long queue of prospective home builders waiting at the door as we came out of the broadcasting studio.

Tuesday, January 14.—The Museum of Modern Art today opened an exhibition, the work of H. H. Richardson, certainly one of the vital figures in America's architectural history. There is a comprehensive and surprisingly large gathering of wash drawings, faded photographs, and typewritten comment which purports to give the observer an intensive course in architectural appreciation. I confess to be considerably saddened by it all. Richardson was a great personality who contributed a powerful note to American architecture in arid years. Nevertheless, when one is confronted with photographs of some of his sturdy masonry window bands in parallel with those of Corbusier, with the purpose of tracing the beginnings of so-called movements, one wonders what great expletive Richardson himself would have made over all this. If the introspective, analytical, philosophical commentators of today can do this with Richardson, I hate to think what those of a few years hence may do to Bertram Goodhue, Henry Bacon, Charles F. McKim, and Thomas Hastings. It seemed to me that a most fervent prayer that rose to my lips was not unjustified: "God save us from our interpreters."

Thursday, January 16.—One of Chicago's South Side mansions, designed by Richard Morris Hunt, that has become a landmark, is to be saved from the wreckers who would have demolished it along with many others of its period in Chicago's march of progress. It is the Marshall Field mansion at 1905 Prairie Avenue, and Marshall Field III has just presented it to the Association of Arts and Industries to be converted into an industrial art school. The twenty-five-room residence will be used for offices, library, exhibition space, design rooms, and lighter machinery. Heavy machinery will be housed in the stables and garages. Incidentally, this was the first house in Chicago to have electric lights.

Saturday, January 18.—Out of the fog of opinions, facts, conjectures, and mere schemes relating to community planning, there is beginning to emerge a picture of a self-contained residential community. It is not entirely self-contained, but presumably not far from a regional metropolis. Its radius may span from a quarter to a half of a mile, its population aggregate between two and six thousand. It possesses an elementary school, shopping districts along the boundary streets, is not bisected or crossed by main heavy traffic arteries, and possesses an identity of its own of a character to inspire pride in its inhabitants.

Sunday, January 19.—Up to the dedication of John Russell Pope's Theodore Roosevelt Memorial Wing of the Museum of Natural History, and it was well dedicated—by the President of the United States, the Governor of the State of New York, and the Mayor of the City of New York. Unlike most dedications of important architectural monuments, the architect's name was mentioned twice in the proceedings—an almost unheard-of occurrence, for it is usually only the members of the women's auxiliary, the representative in Congress, and the chairman of the building committee, possibly, who secure any public credit. Not only was the architect mentioned twice, but the name and work of William Andrew Mackey, who painted the murals in the great hall, came in for honorable mention. The only one of the collaborating artists who was overlooked on this occasion was Edward Field Sanford, Jr., whose bas-reliefs lend so much grace to the exterior.

Monday, January 20.—Pierre Blouke dropped in on his way from Boston back to his task at the H. O. L. C. at Washington. We gathered at luncheon with an enthusiastic group of the younger architects who are aroused by the necessity of doing something about the small-house problem. A promising path opens up at present through the desire of the Federal Home Loan Bank system to achieve some permanent form of co-operation between its many lending institutions and a technical service which will make sure that the owner gets a good house, and also that the loaning institution is properly protected by having, as collateral for its loan, a dwelling that will neither be obsolescent in a few years nor fall down before the amortization is completed. It is along this path that opportunity beckons for groups to be formed in all the metropolitan areas for the purpose of rendering a limited architectural service at a price that the traffic will bear.

Wednesday, January 22.—Pedac—the Permanent Exhibition of Decorative Arts and Crafts to you—is showing a few rather remarkable examples of wrought aluminum by an Italian craftsman named Coletti. These examples show a combination of bar structure, bent cold, with parts of the design modelled and elaborately chased. Moreover, there are added very delicate parts, such as the tail feathers of a peacock, by welding. Count Cippico, who is head of the Aluminum Company of Italy, tells me that aluminum is fairly easy to work cold, being softer than iron, but it is the welding process that calls for experienced craftsmanship. There is a very narrow margin in temperature between a point at which the welding action will take place and the point at which the whole thing melts. Considering the beauty of the results, however, we shall probably see a lot more wrought aluminum before very long.

Monday, January 27.—Following a series of enthusiastic meetings of a group of younger architects in New York, we met at the office of William and Geoffrey Platt to effect the organization structure. Following the action of the Board of Directors, A. I. A., in their approval of the establishment of local groups of architects prepared to furnish plans, specifications, and individual supervision in the small-house field, we have established the Small House Associates, to provide a limited architectural service. Two points are important: first, this is not another scheme to sell house plans; second, rather than attempting the long, difficult, and perhaps impossible task of educating the house builder of modest means, the purpose is to work with the loaning agencies, to whom, sooner or later, practically all of these home builders eventually come for help and advice.

There is very evidently in the air, on all sides, the beginning of a real movement to establish local groups of architects to attempt this small-house problem. Buffao, Baltimore, and Washington are among the trail blazers. It would be eminently desirable, I should think, that the experiences and judgment of these groups be correlated and shared with one another, so that as soon as possible a national pattern for such an organization and its procedure might be established.

Wednesday, January 29.—One has but to keep his eyes and ears open these days to realize that all of the power of the modern tool, merchandizing, is being put behind the selling of the small home and its accessories to the public. Wherever one goes, he is likely to be confronted with a motion picture, made and starred by Hollywood, in which the advantages and general indispensability of modern kitchen equipment or the house electric is dramatized. There may be a strong suggestion of the side-show barker and the ballyhoo artist about all this, but there seems to be evidence also that it, at least, is doing the selling job for which it was designed.

Friday, January 31.—I should think that there would be a growing demand for the installation of a type of primary first aid and hospital equipment in many institutions such as factories, school systems, and the like. It is curious that there have not been more examples of this sort of thing published. Information as to what the requisites are, and logical plans and details would, I feel sure, be more than welcome by the profession from any of its members who have met and solved this problem.

NUMBER 113

IN A SERIES OF COLLECTIONS OF PHOTOGRAPHS
ILLUSTRATING VARIOUS MINOR ARCHITECTURAL DETAILS

ARCHITECTURE'S PORTFOLIO OF

BALCONY RAILINGS

(INTERIOR)

Subjects of previous portfolios are listed below at left and right of page

1926
- DORMER WINDOWS
- SHUTTERS AND BLINDS

1927
- ENGLISH PANELLING
- GEORGIAN STAIRWAYS
- STONE MASONRY TEXTURES
- ENGLISH CHIMNEYS
- FANLIGHTS AND OVERDOORS
- TEXTURES OF BRICKWORK
- IRON RAILINGS
- DOOR HARDWARE
- PALLADIAN MOTIVES
- GABLE ENDS
- COLONIAL TOP-RAILINGS
- CIRCULAR AND OVAL WINDOWS

1928
- BUILT-IN BOOKCASES
- CHIMNEY TOPS
- DOOR HOODS
- BAY WINDOWS
- CUPOLAS
- GARDEN GATES
- STAIR ENDS
- BALCONIES
- GARDEN WALLS
- ARCADES
- PLASTER CEILINGS
- CORNICES OF WOOD

1929
- DOORWAY LIGHTING
- ENGLISH FIREPLACES
- GATE-POST TOPS
- GARDEN STEPS
- RAIN LEADER HEADS
- GARDEN POOLS
- QUOINS
- INTERIOR PAVING
- BELT COURSES
- KEYSTONES
- AIDS TO FENESTRATION
- BALUSTRADES

1930
- SPANDRELS
- CHANCEL FURNITURE
- BUSINESS BUILDING ENTRANCES
- GARDEN SHELTERS
- ELEVATOR DOORS
- ENTRANCE PORCHES
- PATIOS
- TREILLAGE
- FLAGPOLE HOLDERS
- CASEMENT WINDOWS
- FENCES OF WOOD
- GOTHIC DOORWAYS



Below are the subjects of forthcoming Portfolios

Gothic Buttresses
APRIL

Corner Windows
MAY

Self-supporting Stairways
JUNE

Window Heads
(INTERIOR)
JULY

Garden Enclosures
AUGUST

Church Lighting Fixtures
SEPTEMBER

Photographs showing interesting examples under any of these headings will be welcomed by the Editor, though it should be noted that these respective issues are made up about six weeks in advance of publication date

1931
- BANKING-ROOM CHECK DESKS
- SECOND-STORY PORCHES
- TOWER CLOCKS
- ALTARS
- GARAGE DOORS
- MAIL-CHUTE BOXES

1931—*Continued*
- WEATHER-VANES
- BANK ENTRANCES
- [illegible]
- WINDOW GRILLES
- CHINA CUPBOARDS
- PARAPETS

1932
- RADIATOR ENCLOSURES
- INTERIOR CLOCKS
- OUTSIDE STAIRWAYS
- LEADED GLASS MEDALLIONS
- EXTERIOR DOORS OF WOOD
- METAL FENCES
- HANGING SIGNS
- WOOD CEILINGS
- MARQUISES
- WALL SHEATHING
- FRENCH STONEWORK
- OVER-MANTEL TREATMENTS

1933
- BANK SCREENS
- INTERIOR DOORS
- METAL STAIR RAILINGS
- VERANDAS
- THE EAGLE IN SCULPTURE
- EAVES RETURNS ON MASONRY GABLES
- EXTERIOR LETTERING
- ENTRANCE DRIVEWAYS
- CORBELS
- PEW ENDS
- GOTHIC NICHES
- CURTAIN TREATMENT AT WINDOWS

1934
- EXTERIOR PLASTERWORK
- CHURCH DOORS
- FOUNTAINS
- MODERN ORNAMENT
- RUSTICATION
- ORGAN CASES
- GARDEN FURNITURE
- WINDOW HEADS, EXTERIOR
- SPIRES
- BUSINESS BUILDING LOBBIES
- ROOF TRUSSES
- MODERN LIGHTING FIXTURES

1935
- CIRCULAR WINDOWS (GOTHIC AND ROMANESQUE)
- TILE ROOFS
- MOLDED BRICK
- DORMER WINDOWS
- ENTRANCE SEATS
- OVERDOORS, INTERIOR
- BRICK CORNICES
- SIGNS
- CHIMNEY OFFSETS
- WINDOW HEADS (EXTERIOR, ARCHED)
- UNUSUAL BRICKWORK
- SHUTTERS AND BLINDS

1936
- FIREPLACES (MEDITERRANEAN TYPES)
- PEDIMENTS (EXTERIOR)



A camp, Upper St. Regis Lake, N. Y.
Scopes & Feustmann



House, Santa Fé, N. M.
Reginald D. Johnson

A camp, Lake Placid, N. Y.
Scopes & Feustmann



Folger Shakespeare Library, Washington, D. C.
Paul P. Cret





Bellevue Theatre, Upper Montclair, N. J.
John H. Phillips



First Baptist Church, Knoxville, Tenn.
Dougherty & Gardner

Bankers Trust Building, Detroit, Mich.
Smith, Hinchman & Grylls



Kindergarten Building, Foochow, China
Paul P. Wiant



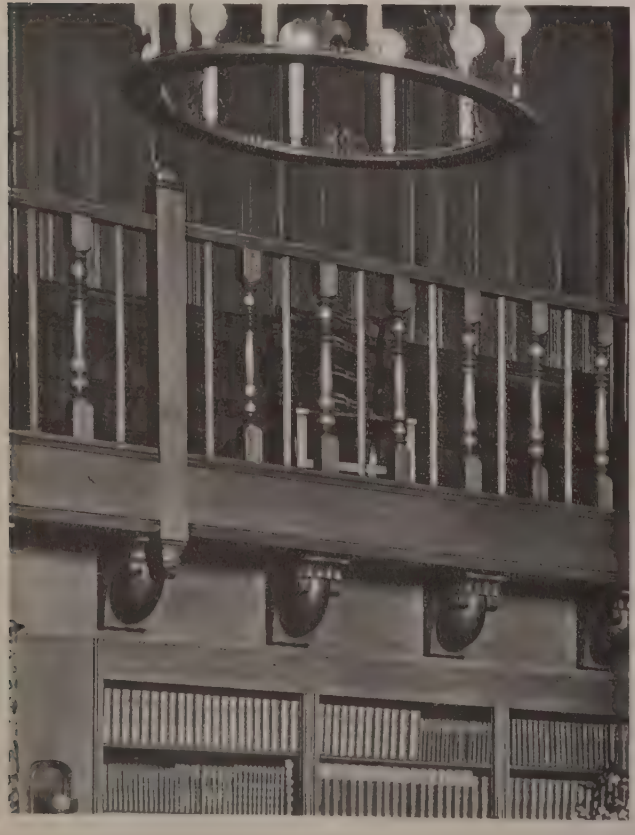


Old church
Santa Cruz, Calif.



House, Northeast Harbor, Me.
Tilden, Register & Pepper

House, Portland, Ore.
Herman Brookman

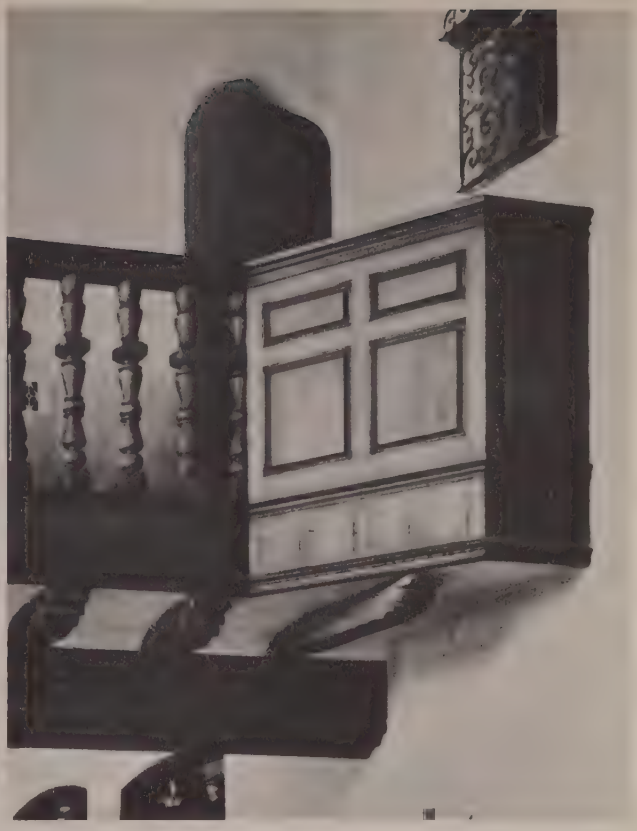


First Congregational Church, Montclair, N. J.
Bertram G. Goodhue





House, Westbury, N. Y.
Algernon S. Bell



House, Darien, Conn.
Wesley Sherwood Bessell

Park Avenue Baptist Church, New York City
Henry C. Pelton; Allen & Collens

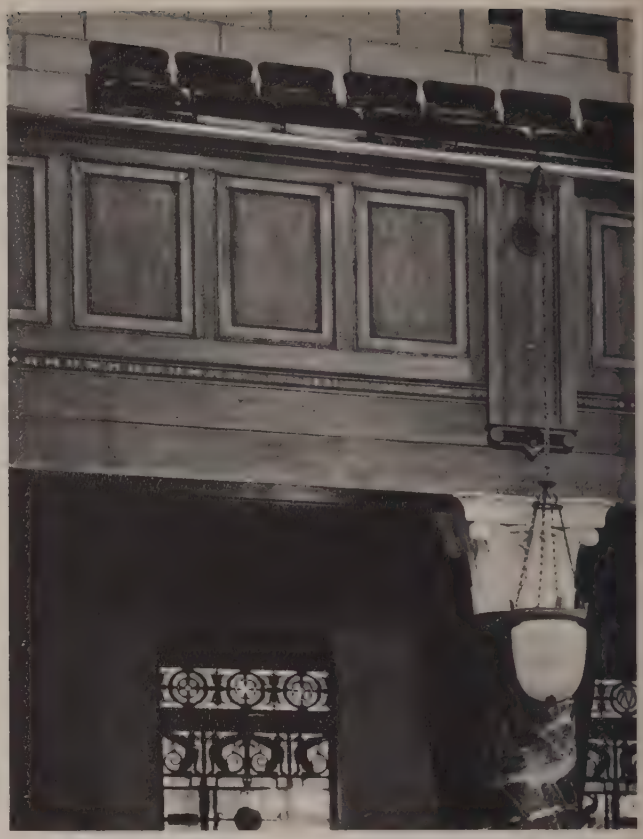


Studio, Southampton, N. Y.
Archibald M. Brown





Temple Emanu-El, San Francisco, Calif.
Bakewell & Brown; Sylvain Schnaittacher



National Academy of Sciences, Washington, D. C.
Bertram G. Goodhue

Wilmington (Del.) Public Library
Edward L. Tilton; Alfred M. Githens



Furniture Mart, Chicago, Ill.
Henry Raeder; N. Max Dunning and George C. Nimmons & Co.





First Baptist Church, Knoxville, Tenn.
Dougherty & Gardner



Flatbush Reformed Dutch Church, Flatbush, N. Y.
Meyer & Mathieu

Municipal Group, Springfield, Mass.
Pell & Corbett



Fourth Presbyterian Church, Chicago, Ill.
Cram, Goodhue & Ferguson;
Howard VanDoren Shaw



© Wurts Brothers, 1914



National Newark & Essex Bank, Newark, N. J.
Ely & Ely



Fisher Building, Detroit, Mich.
Albert Kahn, Inc.

House, Reidsville, N. C.
Harry Creighton Ingalls



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Holmesburg Trust Company, Holmesburg, Pa.
Davis, Dunlap & Barney



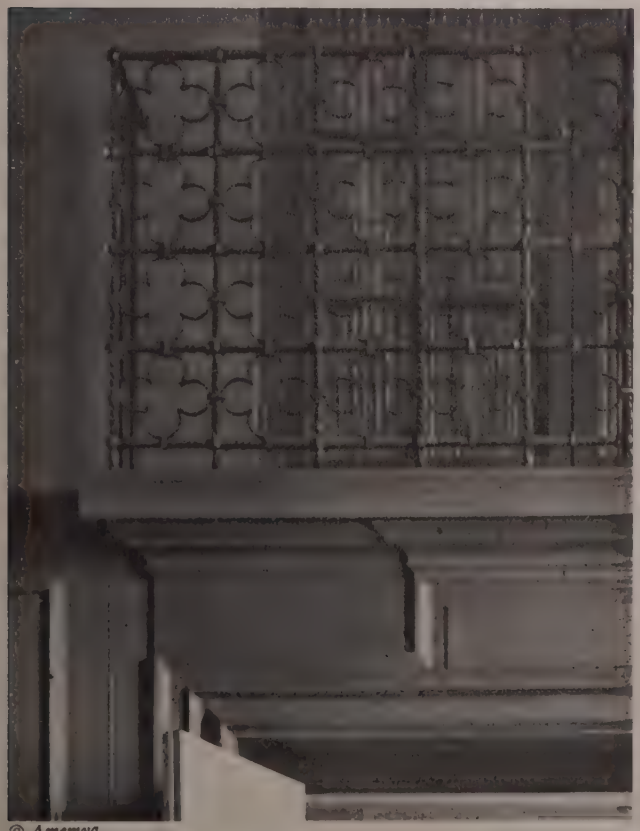


Bankers Trust Company
Montague Flagg



Cuban Legation, Washington, D. C.
Robert L. MacNeil

Apartment, New York City
Mott B. Schmidt



© Amemya

Temple Emanu-El, San Francisco, Calif.
Bakewell & Brown; Sylvain Schnaittacher





Guild Hall, East Hampton, N. Y.
Aymar Embury II



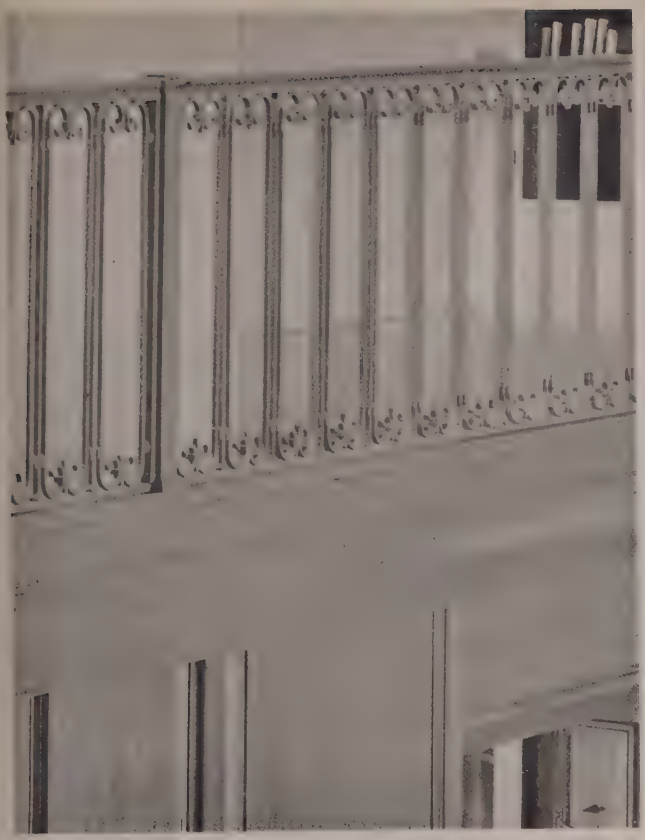
Y. M. C. A., New York City
Dwight James Baum

Sterling Chemistry Laboratory, New Haven, Conn.
Delano & Aldrich



Charlotte Country Club, Charlotte, N. C.
Aymar Embury II





Public Library, Mobile, Ala.
George B. Rogers



Constitution Hall, Washington, D. C.
Office of John Russell Pope

Federation Settlement, New York City
W. L. Rouse; L. A. Goldstone



School of Architecture, Princeton, N. J.
Cram & Ferguson





National Democratic Club, New York City
C. P. H. Gilbert



Hotel Pennsylvania, New York City
McKim, Mead & White

House, Hollywood, Calif.
Carleton Monroe Winslow



Congress Hotel, Portland, Ore.
Herman Brookman





Society for Relief of Destitute Blind,
New York City
M. L. & H. G. Emery



Hotel Pennsylvania, New York City
McKim, Mead & White

House, Memphis, Tenn.
Mahan & Broadwell



Waldorf-Astoria Hotel, New York City
Schultze & Weaver





Hattem's Market, Los Angeles, Calif.
Walter Hagedolm



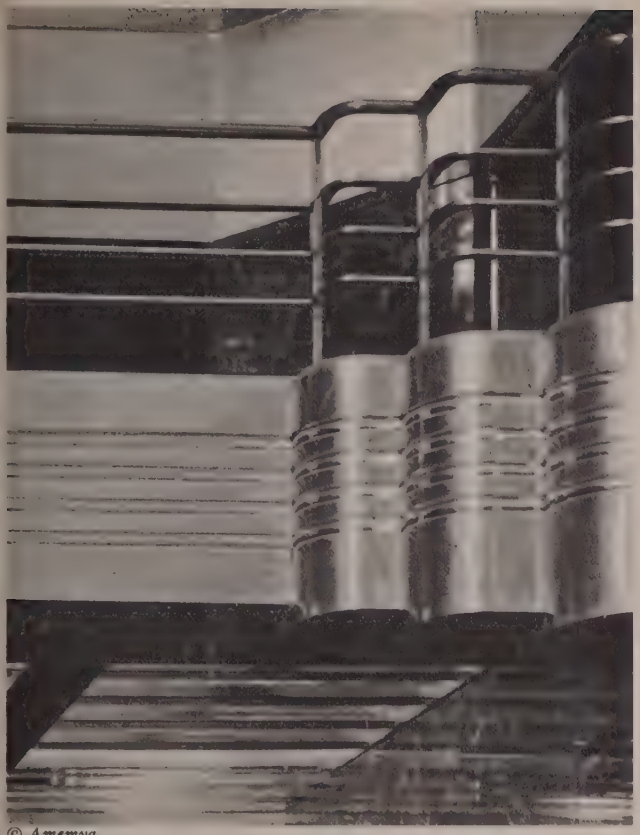
House, Paris, France
Mallet Stevens

House, Tulsa, Okla.
Edward Buehler Delk



Board of Trade Building, Chicago, Ill.
Holabird & Root





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Empire State Building, New York City
Shreve, Lamb & Harmon



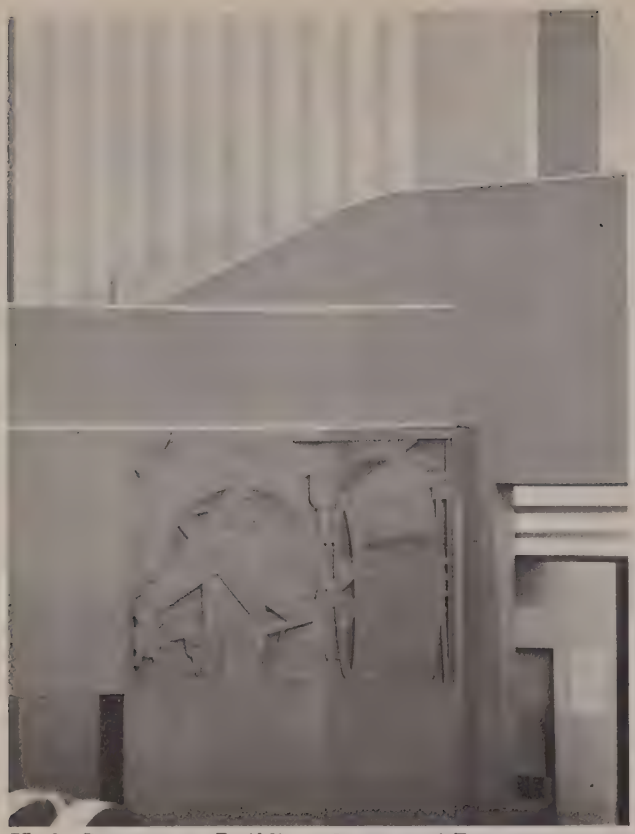
Board of Trade Building, Chicago, Ill.
Holabird & Root

Hotel Shelton, New York City
Arthur Loomis Harmon



House, Century of Progress Exposition, Chicago, Ill.
James S. Kuhne; Percival Goodman





U. S. Government Building, Century of Progress Exposition, Chicago, Ill.
Edward H. Bennett; Arthur Brown, Jr.



Hotel St. George, Brooklyn, N. Y.
Emery Roth

Bank of Hollywood, Hollywood, Calif.
Aleck Curlett



Gymnasium, Girls' School, Hamburg, Germany
Fritz Höger



DESIGN *in* MATERIALS

A DEPARTMENT DEVOTED TO A BETTER LIAISON BETWEEN THOSE WHO ARE DESIGNING THE NEW AMERICA AND THOSE WHO ARE PRODUCING THE MATERIALS WITH WHICH IT IS TO BE REBUILT

THE SAMPLE
Does Yours Work, or Is It a Dud?

By Benton B. Orwig

THE subject of *samples* covers so many different phases of manufacture that it is hoped, in this series of articles, to feature various kinds of samples, their sizes, where and how they can be filed, and general improvement in their style. The amount of samples that reach an architect's office every year varies greatly with the size of the office and its location, but several architects in a city not far distant from New York have told us that along about the first of the year they generally cart away to the dump an accumulation amounting to half a ton.

The office of the active architect generally receives two general groupings of samples: one that the architect requires the contractor to furnish—as a check on materials that he has specified—and another sent out by the manufacturers of building materials, even where there is no definite request, as a display of goods. Of course, these samples accumulated in the office result in a jumble of many sizes, styles and designs, and many are lost in the shuffle.

The filing of samples is a difficult problem. Most offices make at least some attempt to preserve these so that they are readily accessible. Few offices seem to have worked out a satisfactory solution. We are showing two methods used, those in the offices of Cass Gilbert, Jr., and York & Sawyer, both in New York.

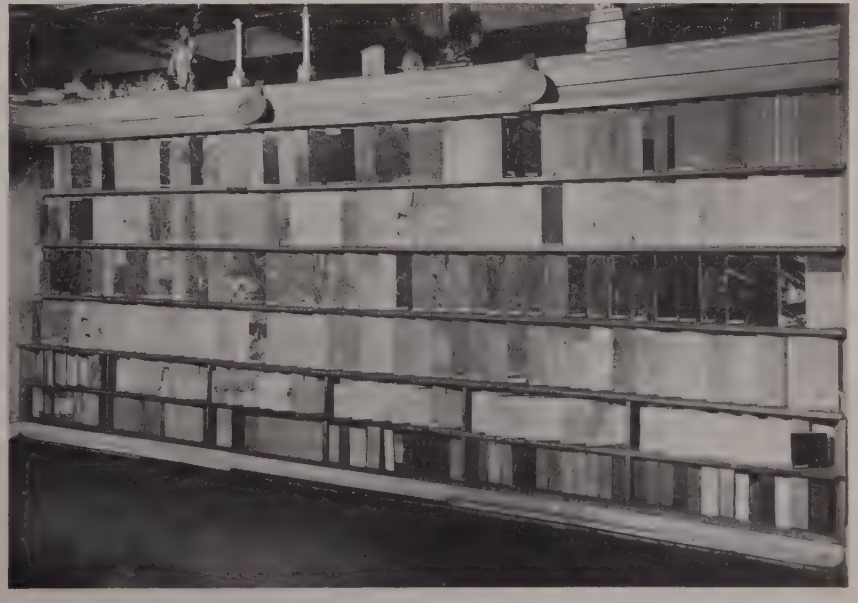
One method of distributing samples, and a successful one, was recently evolved by a terra-cotta company. Reproductions of their terra-cotta in color were sent in a file folder which met all the requirements of size and design of a catalog, and could readily be placed in the file cabinet along with the literature sent out by the company.

In this same category, another folder (illustrated herewith) was distributed by a company producing wood. Bound in this folder, which is of the loose-leaf variety, are six pages having to do with the complete description of the wood, its specification, its installations, uses, advantages, characteristics, costs, etc. Following these pages is an actual sample of the wood, very thin but in proportions to give an adequate presentation of texture and color. This sample is bound in with the literature. The folder measures 9¾″ x 11¾″ and is prepared to take additional plates or bulletins or samples, size 8½″ x 11″. This folder is excellently adapted to the regular catalog file. The tab at the top gives the name of the company, the name of the product, the A. I. A. file number, and leaves a space blank for the name of the nearest representative, obviously to be written in by the architect in each particular location. A marble company and a cement company have done something along this same line, the latter showing stucco on a cardboard sheet. (More of these specific examples will be shown in subsequent issues.)

Sometimes a drawing may take the place of a sample, but it necessarily cannot show the workmanship of the material itself. Texture, color, design, all go into the sample. For numerous purely mechanical instances, a drawing is essential to complete the knowledge of working parts.

A great many samples of materials such as granite, limestone, cut stone, etc., are submitted in large, unwieldy chunks, heavy to handle and so bulky that it is impractical to preserve them. It is desirable, of course, to have a sample of reasonable size and, by cutting down the thickness, more of them would be preserved.

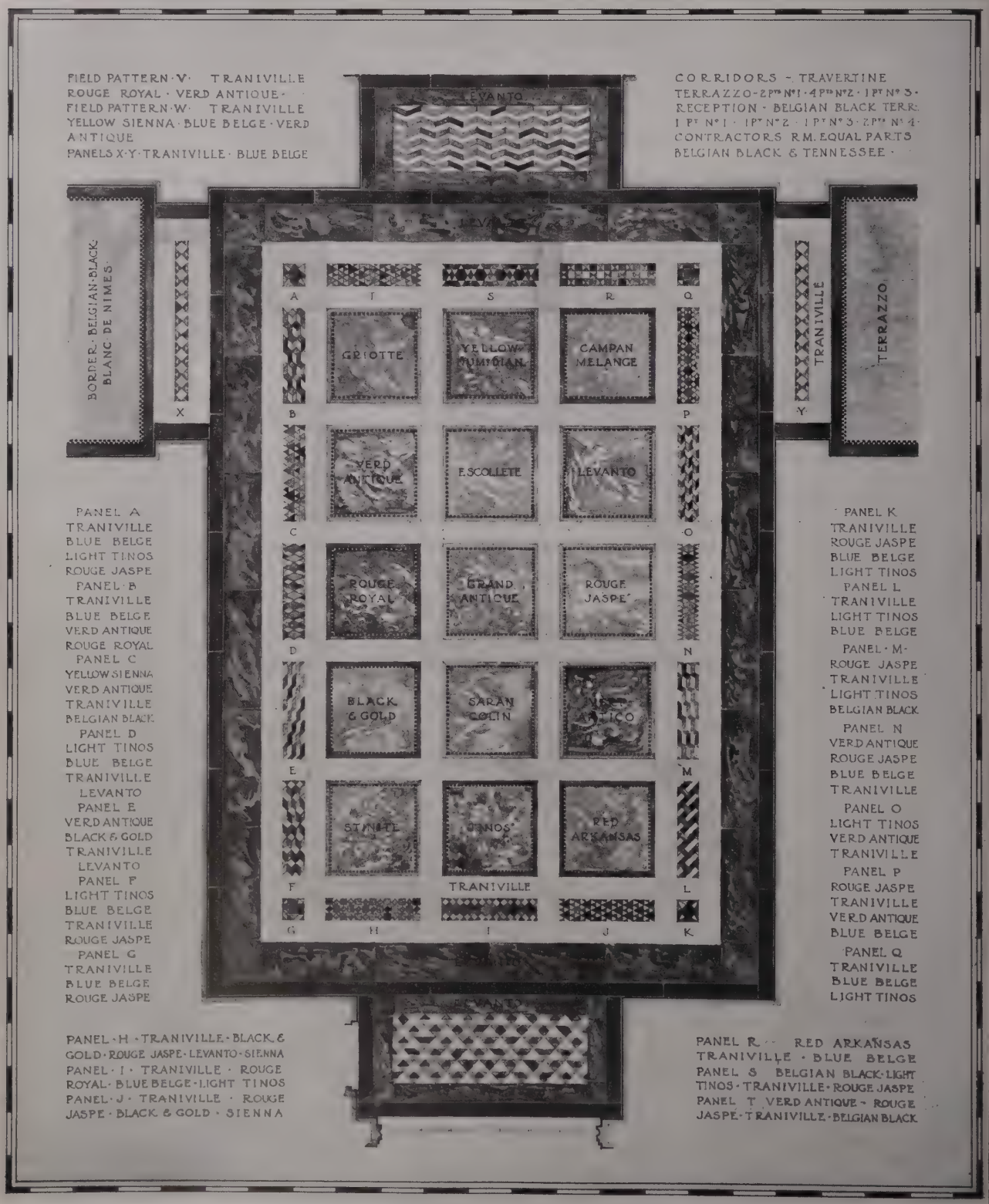
A great many samples of natural wood finishes, such as stains, varnishes, wax preparations, etc., are submitted on pieces of wood too small to bring out the full effect of the finish. A natural wood finish sample which depends on the grain



One side of the Samples Room in the office of Cass Gilbert, Inc., New York City

of the wood to bring out the full beauty of the finish should not be less than 6″ x 8″ in size.

A set of samples of this size, carefully selected for grain of the wood and neatly finished and labelled, sliding in a compact rack, would serve the double purpose of providing the architect with a set of finish samples and wood samples, and would almost certainly be preserved and used. Even if the set

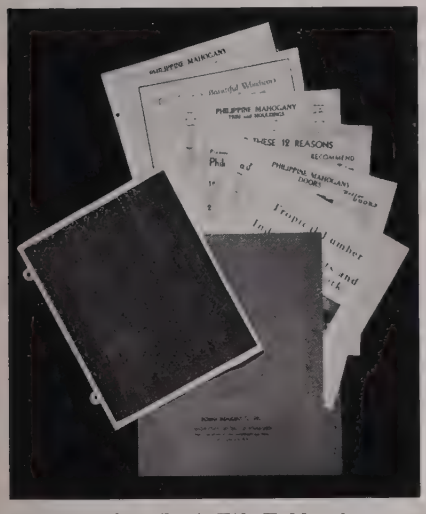


Framed on the Reception Room wall in the office of York & Sawyer, New York City, is this guide to marble samples laid as a floor—see photograph opposite



The Architects Samples Corporation, New York, is an excellent example of the really comprehensive display of samples

Below, the York & Sawyer Reception Room, where marble samples are put to decorative and reference use



The type of A. I. A. File Folder that combines a sample of wood veneer for color and grain with other information that may be needed by the architect

comprises only part of a manufacturer's line, it is better to submit a few representative samples and have them preserved and used, than to submit hundreds of inferior samples only to have them thrown away.

When a manufacturer shows his own material he shows other material as well. The samples of the stain manufacturer show the wood on which the stain is applied; the hardware man shows the frame to which his appliance is fitted. Samples should adequately and correctly show every material that is used in connection with the product.

One more thing: samples should have labels or tags attached to them, *so that they will not come off*, for an untagged sample is like a homeless dog. The tag or label could tell:

What the sample is.
How it is applied.
Name and address of nearest representative.
Date of issue, so that new samples may supersede the old ones.
Specifications, if possible.
Stock sizes, if possible.

The sample is of the utmost importance, whether the architect requires it to be used as a guide in a specific job, or whether he wishes to preserve it in his office for future reference. A *good* sample not only may sell the product to the architect but it also provides the architect with a display to sell the client; a *poor* sample may undo all the selling effort your organization can muster.

The editor will welcome any information, preferably with illustrations, as to schemes that have been developed by architects and which have proven their value in keeping samples in an orderly and readily available form.



Air Conditioning in the Hayden Planetarium

BY GEORGE W. JACOBY, of Trowbridge & Livingston

THERE being no windows in public parts of the Planetarium, a complete air-conditioning plant was designed by Messrs. Trowbridge and Livingston, the architects, and their consulting engineers, Tenney & Ohmes, Inc., to maintain at all times suitable atmospheric conditions for the throngs of visitors.

Provisions are made for filtering all fresh air by means of Protectomotor panel units and for circulating heated and humidified, or cooled and dehumidified, air as required by the weather and density of visitors.

Several years ago, Protectomotor Air Filters were also installed in the Hall of Oceanic Life and the African Hall of the American Museum of Natural History—of which the Hayden Planetarium is a part—to protect the priceless skeletons of whales, elephants, and other exhibits from dust and soot.

An Ingersoll-Rand centrifugal-type water vapor refrigerating unit of 150-ton refrigerating capacity, driven by an exhaust steam turbine, provides cold water for air cooling. Exhaust steam from the electric generators in the Museum's nearby power-house is utilized for operating the refrigerating machine and for air heating when required. This type of apparatus was selected largely for the reason that more than sufficient exhaust steam was available in the warmer weather and the exhaust steam-driven refrigerating machine was therefore economical.



In the filter the air goes 'round and 'round and comes out here

For convenience and economy of operation the ventilating apparatus is divided into three sections, one for the Planetarium room proper, one for the Copernican planetarium on the lower floor, and one for all remaining public spaces such as the exhibition halls and the like.

Each of these three systems, which are similar, consists of an air filter, a steam-heated stack for heating air, and a water-evaporating pan for air humidification for winter use; a cold-water cooled stack for cooling air, and a steam-reheating coil for temperature and humidity control for summer use, together with a motor-driven supply fan and ducts, flues and registers for effective air distribution. Each system also has a corresponding exhaust fan, ducts, etc., so arranged as to deliver all air exhausted outside the building or to return any desired amount of this air to the air supply system at times when all fresh air is not needed.

Separate exhaust fans are provided for toilets, projection booths, and the like.

Several months' successful use has demonstrated the necessity of an adequate air-conditioning system for this type of building.

Aluminum Gates by Coletti

WE do not usually think of wrought aluminum. We have seen the material cast or extruded so often, that we have become accustomed to thinking of it in those forms. But it is rather refreshing to see the results of hand workmanship, and the material forms an ideal medium for the smith's art, for it is a light and lustrous metallic element, resembling silver in many ways, and capable of almost as refined treatments. It can be beaten very thin or tooled most delicately. The fact, too, that it is not subject to corrosion or excess tarnishing recommends it as a decorative metal.



The gates shown are by Coletti, an Italian master smith, and are on exhibition at P. E. D. A. C. in New York. The sympathetic manner in which the medium has been treated, together with the technical skill displayed in the execution, makes them an unusual example of what a skilled artisan can do. Each part is delicately chiselled, twisted and hammered to its required form, and then welded to its companion unit. The infinite patience and enormous amount of labor entailed in developing the minutely worked tail feathers can readily be appreciated. This welding process, incidentally, requires expert knowledge and craftsmanship, for there is a narrow zone of temperature required; below it the weld is not achieved; above it the parts suddenly melt.

Quicker, Stronger Concrete

THE VACUUM COMPRESSION METHOD

By Norman F. MacGregor, Jr.

FOR many years the profession has been faced with the serious problem of the water ratio in concrete. In some instances seven or eight gallons of water must be used to a bag of cement where the mixture has to flow into narrow forms and confined spaces between reinforcing bars. This reduces the strength of the resultant material, and it has long been known that could the water ratio be decreased a stronger material could be produced.

The vacuum compression method of treating concrete, recently introduced, promises to solve this important problem in the building field, and to go far toward removing the disadvantages that have always been considered inherent in the material. The principle is a radical departure from older methods, and consists of applying a vacuum over the surface of the newly poured concrete, which withdraws approximately one-third of the mixing water in from twenty minutes to one hour, dependent upon the size of the form. At the same time it subjects the mixture to an atmospheric pressure equivalent to twenty inches of mercury, or 1400 lbs. per sq. ft., which compacts the concrete as thoroughly as would a gigantic steam-roller.

The advantages incurring from the method are obvious, for the rapidity with which the form may be removed increases the speed of operation and reduces the required number of forms. Moreover, the strength of the concrete, due to the immediate reduction of the water ratio, is increased by possibly as much as 100 per cent, which permits of members with smaller cross-sectional areas, effects a very real reduction in material costs, and increases available floor area.

The simplest application of the theory is effected by rolling out thin rubber mats in long lengths over freshly poured concrete for floor construction, roads, bridge decks, and other purposes. From under these mats air and water are sucked, allowing atmospheric pressure to do the work of compression. By means of a rigid metal cover, it is possible to produce a concrete pavement, true to grade, in one operation after pouring and levelling the concrete.



Above, the vacuum connected; at right, non-skid feature imparted to the surface by half-round bars attached to the bottom of the metal cover



At left, the casting form for the column and the perfect specimen one hour after the concrete was poured

The method, an invention of K. P. Billner, the engineer who developed "Aero-Concrete," was recently given two official demonstrations under the supervision of Theodore Crane, Professor of Architectural Engineering at Yale University, which were witnessed by a group of engineers, scientists, and representatives of important building and cement companies.

The final tests sought to prove the most difficult applications of the principle. For this purpose, a slab was poured with a double layer of two-way reinforcing, one of which was near the bottom and the other near the top. The half-inch bars used were spaced very closely, the distance between them being four inches, center to center. This necessitated the use of a very wet concrete mixture. By using the vacuum-compression method, this slab was compressed to such an extent that, twenty minutes after the pouring, when the mats were removed, the concrete was extremely dense, and could be walked on without marring the surface. The resultant increase in strength would mean that the main cause of future shrinkage had been removed, too, and that, besides getting a much higher bond to the reinforcing steel, the bars would be protected against corrosion caused by shrinkage and subsequent cracking, thus removing one of the fundamental factors causing deterioration of the material.

Another spectacular demonstration was the pouring of a concrete column 25″ in diameter and 10′ in height, reinforced with vertical rods and a spiral, typical of the form used for interior columns of most industrial buildings. The vacuum was created immediately after the concrete had been poured, and when the forms were removed, within an hour, the column not only stood without support, but experts declared it to be a perfect specimen. It was later knocked to pieces by means of picks, and it was quite apparent that the effect of the vacuum in drawing out the water and solidifying the mass had taken place throughout the entire cross-section of the member.

A third test showed the applica-

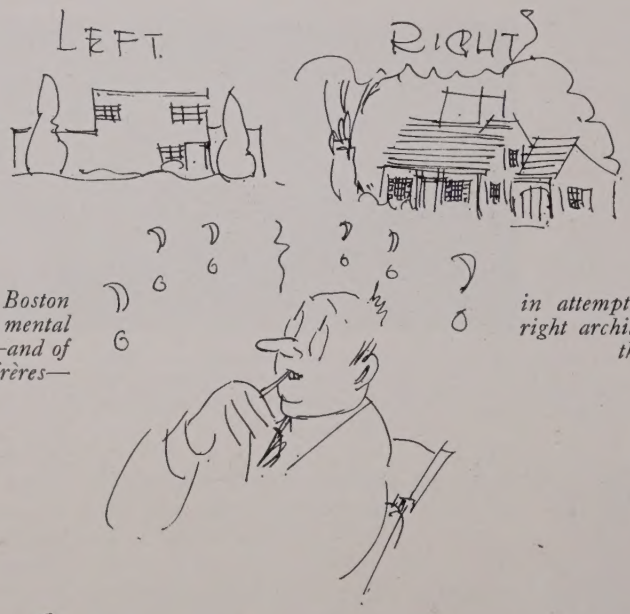
(*Continued on page 191*)



Ely Jacques Kahn, New York architect, went around the world recently to get material for his book, "Design in Industry." The photographer caught him in transportation through Hongkong



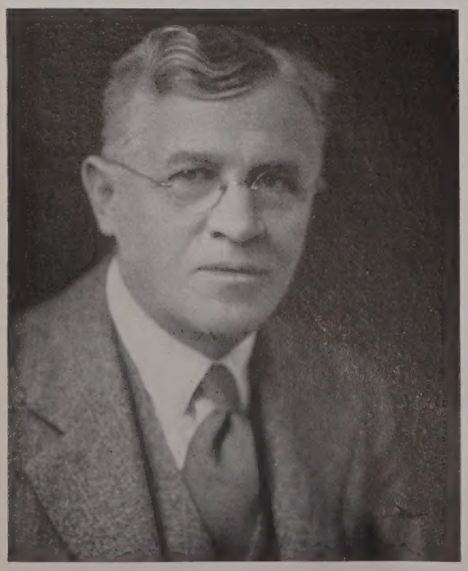
Hugh Ferriss, whose graphic interpretations of architects' great dreams have staggered not only the public but some of the architects themselves, proves that he can not only draw, but also write —in the December, 1935, "Octagon"



Royal Barry Wills, Boston architect, pictures the mental confusion of himself—and of many among his confrères—

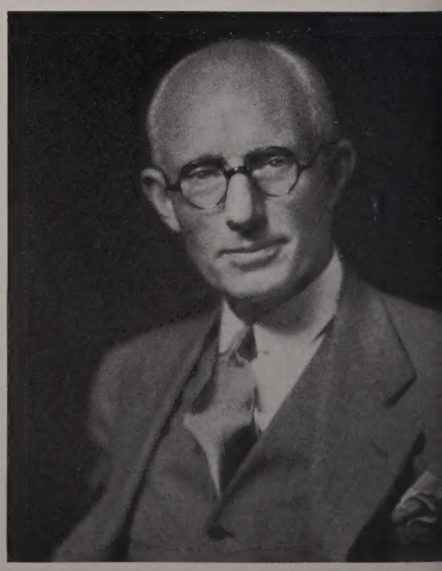
in attempting to follow the right architectural path into the future

You know these men by reputation



Harvey Wiley Corbett, who besides having been diplomé par le gouvernment Français, has been given the degree of LL.D. by the University of California, and the degree of Litt.D. by Columbia, has recently been elected president of the National Alliance of Art and Industry

Although you probably know Dr. Corbett by sight, the chances are that you do not recognize, at the left, his partner, William H. MacMurray, in the firm of Corbett, Harrison & MacMurray, for this is the first time we've ever been able to pry loose a photograph of the gentleman



(*Continued from page 189*)

tion of this method to cement finish, stucco, and cement water-proofing. A concrete slab, 3′ by 5′ in area and about 3″ thick, was spread with a one-inch layer of cement mortar over an area of about 2 sq. ft., on which was placed a specially designed hand tool. The tap was turned and the compression process started. Two minutes later, when the vacuum was removed, four strong laborers lifted the slab by means of a stick placed through the handle of the tool, giving a convincing proof of the tremendous adhesion that it is possible to obtain.

Innumerable other applications of the theory immediately present themselves. It would seem to have but one inherent disadvantage, the increased cost which a variety of forms would incur, but it is always a question whether limitations of this nature are not in themselves an incentive to more ingenious solutions.

The CO-OPERATION I WANT

I feel that we are getting better and better service from the building material manufacturers. The weak point is that salesmen frequently do not know the composition of their product, and have not seen it in use enough to answer our questions. We prefer salesmen who have an actual first-hand experience with what they are selling.

W. R. Greeley, A. I. A.,
of Kilham, Hopkins & Greeley,
Boston, Mass.

I am desirous of adding to my information of all new materials of proven quality and serviceability, and am glad to give time to the inspection of samples and to listen to demonstrations of their special qualities. I am unwilling to be among the first to experiment and must have evidence of proven value. I am not especially interested in pamphlet literature where I often note inferior examples of architecture selected for demonstration.

The co-operation given by manufacturers is usually well adapted to the requirements of architects' offices.

Nathaniel Cortlandt Curtis, A. I. A.,
New Orleans, La.

I want correct technical information about the material and an accurate idea of relative or actual cost. Inasmuch as the client's interest is a prime consideration, a manufacturer can be most helpful by assisting the architect in fulfilling his professional obligations.

Gordon B. Kaufmann, A. I. A.,
Los Angeles, Calif.

The PRODUCERS' COUNCIL

Wall Street Studies the Building Boom

By John F. Gowan
Executive Secretary

FOR the last few years we in the building industry have been whistling in the dark and telling ourselves that the boom was just around the corner—sort of pulling ourselves up by the well-known boot straps. But for all our self-assuring, we haven't had much public acceptance of our prognostications—until recently. It's been tough.

So it is nice and refreshing to suddenly find ourselves the cynosure of financial eyes, and to realize that we producers have become *persona* decidedly *grata* to the ticker-tape cult.

Irrefutable evidence of the resurgence of building is to be found in the way Wall Street is looking with keen interest at the balance sheets and earnings records of Council members and other large factors in the capital goods business. There are many indications of this recent realization of the fact that, by and large, the producers of building materials have carried on bravely and come through a most distressing period with tightened belts, perhaps, but clear heads and unimpaired vigor. The importance of the reports of companies listed on the Stock Exchange is shown by the play given them in the financial sections of the press. Investment companies have been making intense studies of our industry and various of its composite units. Investment counsellors and statistical bureaus have increasingly pointed out the potentialities. Even large investors of fiduciary funds have begun to examine our finances and ways of doing business.

The durable goods industry may not be the best investment medium, but at present it certainly presents an A-1 speculative aspect.

Recently, Distributors Group, Inc., published an analysis of the building industry which presents a number of interesting data and conclusions. To comment briefly:

"For ten years (1921–30) building averaged over five billions annually. For five years (1931–35) the average has been less than two billions. There is a cumulative shortage of sixteen billions. Which means that it will take more than three years of capacity production just to catch up with present demand."

In our opinion these figures are conservative. And it will be nearer five years before we are caught up. On this point the Housing Commission of the Chamber of Commerce of the United States says that for the next ten years 400,000 new urban dwelling units will be needed each year.

"Construction costs are still high as compared with the general price level. They should remain relatively stationary as to both labor and materials, however, while general price levels rise. Thus, relative building costs will be lowered and construction correspondingly stimulated."

Perhaps this will be one means of meeting the demand for quality houses at not to exceed $300 per room—and a two-car garage.

"Vacancies are steadily decreasing. In St. Louis they have dropped from 12.8 per cent in November, 1932, to 3.9 per cent in November, 1935. 'Experience indicates that when vacancy ratio in residential field approaches 3 per cent new construction expands rapidly.'

"As vacancies go down rentals go

up. The increase has been steady since January, 1934. When rents exceed interest charges on capital required to erect comparable buildings, construction is stimulated.

"Cheap money stimulates building activity. Low return from customary investment channels and dearth of new offerings of securities is turning insurance companies and savings banks to real estate. Publicly held mortgages total forty-three billions, but there is a liberal supply of mortgage money."

The general truth of these three statements is admitted. It remains in many communities to overcome the inertia of established order and public willingness to accept real but accustomed discomforts rather than exert energy enough to be rid of them.

"Prefabrication will not be a factor until (*a*) costs are substantially reduced, and (*b*) such structures can meet the demand of widely varying individual home owners' tastes."

(*a*) is real factor, but we cannot agree that (*b*) is. The prefabricated idea has not yet overcome the objections that houses so built are (*c*) ipso facto not as good as custom built, and (*d*) can only be built in radical designs—"modern"—which depart widely from tradition. Once these criticisms are met, individualism will cease to be a factor, just as when the "brownstone front" craze swept the East forty to fifty years ago.

"Air conditioning, now being priced within the range of moderate sized dwellings, is having an increasingly stimulating effect. It appeals both to the imaginative and practical sides of the home builder."

No question about that, but how long before the art of air conditioning will reach the goal of perfection for the small house?

"Accumulated shortage of residences is about 1,000,000 units. About 362,000 built per year during 1921–30; last three years average has been about 25,000."

This seems low. Old figures used to show a need of 250,000 new dwellings to care for normal annual population increase. If we ever get to "undoubling" our families we'll have to build at a much faster rate to house their radios and mechanized kitchens.

"New marriages reached all-time low in 1932—7.8 per 1000 population. Most cities have accumulated a 'marriage reserve' of one and one-half times normal. Delayed marriages have always been single largest contributing factor to building booms."

"Replacements due to obsolescence and depreciation have been minimum. Repairs and renovations retarded so much that many structures have reached condition where it is cheaper to rebuild than repair.

"While 1930–33 showed population movement from city to farm, direction has recently reversed, due to increased employment in factories and cities."

This augurs well for urban building, especially if industrial recovery continues—as seems likely.

"Producers are said to be budgeting for 100 per cent increase of home building activity over 1935."

Our estimates have placed this at 150 per cent, while Peter Grimm predicts 300–400 per cent. If same gain in residential building (250 per cent) is seen in 1936 as in 1935, at least 200,000 units will be built.

"Non-residential construction will be principally in industrial plants, due to increased demand and development of new products and processes which require new factories."

This seems logical, but we have heard for a long time that industry had expanded beyond all hope of future production before 1929, so that new buildings and machinery might well be obsolete before business volume would warrant their use.

"Expansion probabilities in the public-utility field are still uncertain. Normally this absorbs 8 per cent of annual building volume.

"Public works, fed by recent appropriations and authorizations, will show an increase of from 50 to 75 per cent in 1936.

" 'A total construction volume of from 2.5 to 3 billion dollars is indicated in 1936.' An increase of from 40 to 70 per cent over 1935. (Our estimate is 50 per cent.) Such an increase will still leave a huge unfilled demand for succeeding years.

"Despite poor records of earnings during lean years, producer companies have shown surprising financial strength. Building volume in 1935 was about 70 per cent below 1929, but composite net working capital of twenty-three companies shrank only 31 per cent. Current ratios have shown steady improvement, rising from 5.6 to 1 in 1929 to 7.8 to 1 in 1934. Earnings began upward climb late in 1934."

All of which show results of able management, and excellent position to handle coming increased business.

Distributors' Group, Inc., concludes, therefore, that:

1. Building in 1936 will experience a decided boom, compared to 1931–35 levels.
2. Greatest increase will be in housing.
3. Lag in non-residential construction will be more than offset by decided increase in public works.
4. Any clarification of public utility situation might start substantial amount of construction.
5. Major producer companies are in a satisfactory position from financial, sales, and production angles.
6. Earnings should show marked improvement over 1935, comparing favorably with pre-depression figures.
7. Present prices of common stocks do not reflect this favorable aspect.

We cannot attempt to vouch for the figures given, but the basic contentions are, we believe, in accord with the conclusions of sound students of construction economics.

With no desire to be a kill-joy, reports from Washington are not so roseate. It is generally understood that Congress will amend the Housing Act in an effort to aid business activity in an election year, but any aid from this source will probably arrive too late to do much good in 1936. So, while there is every hope of a healthy increase this year, boom proportions will not be reached until 1937 and 1938.

With the opinion of our Washington informant we feel in complete sympathy. 1936 is already too far advanced to develop a real boom. But it's on its way, never fear.

Some of the proposed amendments are:

To increase the insurance of mortgages to 90 per cent of the appraised value of houses costing $5000 and less.

To extend modernization-loan insurance to April 1, 1938.

To extend government guarantee of insurance debentures beyond 1937.

To encourage the establishment of National Mortgage Associations by increasing the ratio of bonds issued against capitalization from 12 to 20 to 1.

To encourage limited-dividend corporations on private low-cost housing.